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JULY 7

1952

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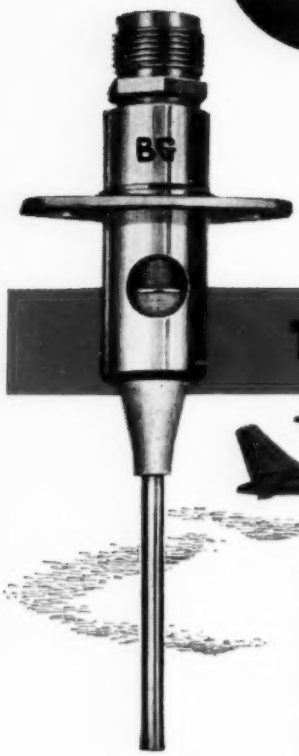

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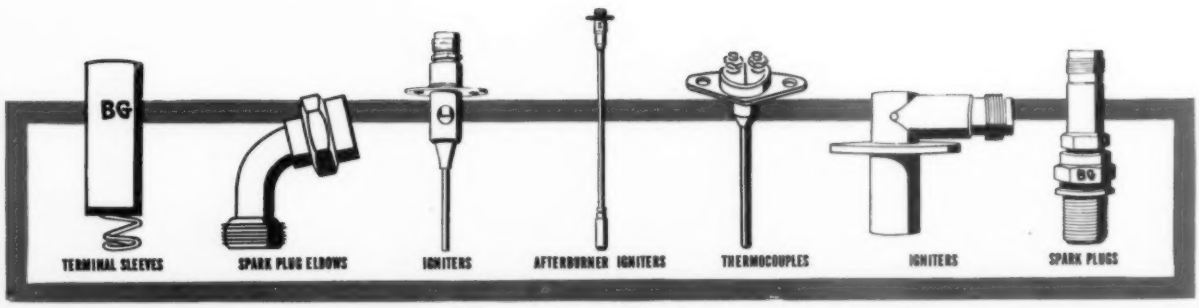

Trends

Although military plane production is now numerically "on schedule" (at the rate of 10,000 planes yearly), the figures are misleading. Lightplanes are ahead of schedule, but output of jet bombers and fighters is lagging. Production goal of 15,000 planes yearly is to be reached in 1953.

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Recent rise in cost-of-living index means wage boosts of at least one cent an hour for thousands of aircraft workers covered by contracts with escalator clauses.

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British are planning a Comet IV which they think will be "the" jet transport. It will be the perfected result of first three models, all of which are experimental in one way or another.

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Controversy over a national high intensity approach light standard will be renewed with publication soon of a report by a CAA working group, composed of Air Force, Navy, ATA, CAA, and Air Line Pilots Association. Latter three will favor ALPA's center-row system over slope line and left-row ladder systems now installed. AF and Navy will dissent and won't sign the report.

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Sen. Owen Brewster's position in Republican party will probably assure him of top spot somewhere in the administration if his party comes into power. It's unlikely that Brewster, defeated in the Maine primary, will drop his interest in aviation.

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Five airlines are interested in possible merger with Capital Airlines, now that Northwest-Capital deal is off. They are United, American, National, Eastern, and TWA. UAL talks are further along than any others.

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CAB will keep after Colonial Airlines until merger deal is reached which Board believes is in long-range public interest (see "News at Deadline" for merger offers). A deal based only on financial considerations won't be approved.

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Busy telephones are costing the airlines some traffic. Public is still having trouble reaching reservations departments by phone. Top executives are trying to unsnarl the jam.

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Among the 42 safety awards to U.S. airlines by the National Safety Council were three to carriers with over 20 years' operation without fatalities—Hawaiian Airlines (22), Colonial (21) and Inland (20). Three went to lines with records of 15 years or more—Northwest, Continental, and Chicago and Southern.

•

Question of mandatory separation of maintenance and inspection activities in the airlines may become the subject of a formal CAB hearing as a result of protests voiced by the Air Line Pilots Association and Flight Engineers International Association when CAB attempted to eliminate the proposed ruling.

The Washington View

Trouble Ahead on Wages

The new version of the Defense Production Act, just passed by the House and Senate, leaves the aircraft industry in pretty much its former status as far as allocations of steel, copper and aluminum are concerned.

But one big headache as far as plane builders are concerned will be a new rule exempting professional engineers from all wage and salary controls.

The already critical shortage of engineers in the aircraft industry may become worse as a result of this amendment, because aircraft firms will probably be unable to offer salaries as high as those offered by other industries. If nothing else materializes, there will undoubtedly be demands by engineers working for aircraft and engine producers for higher pay. And the industry will probably have to meet those demands.

Did! . . . Didn't! . . . Did! . . .

Were it not for the fact that a leading aircraft-automobile manufacturer was unjustly castigated on the floor of the House, the go-around involving Kaiser-Frazer Corp. and Rep. Alvin E. O'Konski (R., Wisc.) might well be called a comedy of errors.

After O'Konski's charges were made, Henry J. Kaiser and his son Edgar presented him with sworn statements refuting the allegations point by point. Newspapers then received a release labeled "From the Office of Alvin E. O'Konski," which quoted the Congressman as being entirely satisfied that the Kaiser document "completely refutes all of the charges I inserted in the [Congressional] Record." The news release also said O'Konski would insert the Kaiser statements in the Record.

They ended up in the Record—but they were inserted by Rep. James H. Morrison (D., La.) who explained he was inserting the statement and the retraction for O'Konski during the Republican's absence in his home state.

Then O'Konski came back with a denial that he had retracted the charges. He said, "I did not give any person authority to put anything in the Congressional Record or to make any statement of any nature as coming from me." He followed up with a statement that the press release attributed to him had been prepared by Kaiser associates as a "suggested" statement and added that the remarks "were not mine nor were they released by me or my office."

At this point, the Kaiser-Frazer office issued a counter-statement declaring O'Konski had definitely written the news release and "any statement by Congressman O'Konski to the contrary is just as untrue and insincere as his original erroneous charges." K-F added that the Congressman had also directed the Kaiser office to distribute the original news release and had given his permission to reproduce it. All of these incidents were witnessed by qualified observers, Kaiser said. Thus far, no new rebuttal from O'Konski.

Machine Tool Program: A Classic

"Inexcusable shortsightedness and gross mismanagement" is the phrase the Senate Small Business Subcommittee on Mobilization and Procurement used to describe the handling of the machine tool program by the Defense Department and other government agencies during the current buildup.

Sen. Blair Moody's (D., Mich.) group scored the Defense Department for not producing a master priority list for machine tools until January, 1952 (18 months after Korea), calling this "a classic example of nonfeasance." It was also critical of the delay in granting price relief and priorities assistance to machine tool builders.

The subcommittee's report recommended an "aggressive" program to stabilize the traditionally feast-or-famine machine tool industry—a program which should also be extended to the aircraft industry.

The Fight for Union Shops

Aircraft labor's demand for a union shop, which would force all newly hired workers to join the union shortly after getting on the payroll, seems to be lessening in view of the determination of some aircraft companies not to give in on this particular issue.

In its contract with Douglas-Long Beach, for example, the UAW-CIO can legally call a strike on the union shop issue. But the Autoworkers have not seen fit to try to pull a strike or even yell loudly on this single point. The same situation holds true at Ryan Aeronautical in its pact with the UAW and at Boeing-Wichita in the case of the AFL-Machinists.

Current negotiations between General Electric's J-47 plant at Lockland and the two aircraft unions have also bogged down over the union shop. As a result, the UAW has retreated to a demand for a maintenance-of-membership clause. The IAM's negotiations with GE also resulted in the Machinists backing down from the union shop, although they have supposedly gone back to their original demand since. It can be safely predicted, however, that the ultimate GE contract with both unions this year will not include the union shop.

. . . Robert M. Loebelson

THE FJ-2 FURY

This North American Aviation, Inc. new sweptwing jet fighter is a speedy, highly maneuverable plane designed especially for Navy carrier operations. The optical properties of its Swedlow-made transparent enclosure contribute to the efficiency with which this versatile fighting machine can perform in action.

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July 7, 1952 Vol. 16, No. 3

Cover Photo

CHARLES AMMANN, American Airlines assistant director of reservations and ticket offices, has spent a substantial part of his time during the past eight years working in cooperation with the Teleregister Corporation on an automatic reservations system—a machine which American is now putting into operation at New York City (see page 24).

Ammann, 42, has an unusual combination of talents, having served as both project engineer and communications engineer with American Airlines prior to going into reservations work. His formal education included training at Columbia, Syracuse, and New York Universities. Prior to joining AA in 1943 he was employed by Eastern Engineering and Sales Corp., Aqua Systems, Inc., and Cross Paper Products Co. During this period he worked on the design of a sound system for West Point Military Academy, the Woolworth stores, and on the design of ship-to-shore radiotelephone equipment.

other publications

American Aviation Daily (including **International Aviation**): Published daily except Saturdays, Sundays and holidays. Subscriptions: $18 one month; $200 one year. Daniel S. Wentz II, managing editor.

American Aviation Directory: Published twice a year, spring and fall. Single copy, $7.50. Marion E. Grambow, managing editor.

Official Airline Guide: Monthly publication of airline schedules and fares. Subscriptions: U. S. A. and countries belonging to the Pan American Postal Union, including Spain and the Philippines, $11.00 one year, Canada, $11.50. All other countries, $12.50. Published from editorial offices at 139 North Clark St., Chicago 2, Ill. Central 6-5804. C. N. Johnson, managing editor.

American Aviation Traffic News (incorporating **Air Tariff Reports**): Published daily except Saturdays, Sundays and holidays. Subscriptions: $150 a year. Preble Staver, managing editor.

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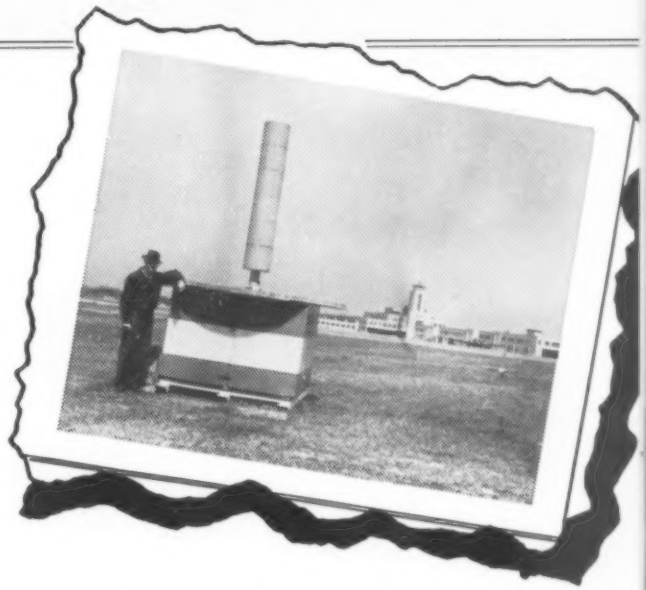
TVOR SPECIAL NEWSLETTER

Of vital interest to Airline Management, this newsletter is a condensation of latest news about the Air Transport Association developed, low-cost Terminal VHF Omni-Range unit.



What it is — A new, low-cost let-down facility for airline stops. It promises a substantial contribution to safety and efficiency of public air transportation -- improved regularity at lower traffic density points — here and abroad. And — estimated total cost for the new unit is less than $8,000 . . . a fraction of the cost of existing VOR facilities.

How it all started — Milton W. Arnold, Vice President — Operations and Engineering for ATA, directed the ANTC Division to develop a let-down facility practical for use by airlines. The situation as ATA saw it — 200 certified stops are now limited to fair weather operation because of lack of suitable let-down aids — 200 to 300 more airline stops to be certificated within two years — the CAA unable, for budgetary reasons, to install a let-down facility of any type at many of the new locations.

Conclusion — A pressing need for a let-down aid available to airlines. Furthermore, the equipment must: (1) be designed for operation with present VOR airborne equipment. (2) be low-cost to justify its use in low density locations. (3) be placed on the airport itself for real estate, installation and maintenance savings. (4) be off-the-shelf equipment, using circuit designs thoroughly proved in service.

The project got under way. Equipment — a number of standard Wilcox units were selected and installed in a low-cost, small space shelter. Tests of the completed unit were made at Friendship International Airport, Baltimore, Maryland. These tests made by flight test experts indicate that course accuracy, over-station indication and stability of indication are highly satisfactory.

Wilcox Electric Company, Inc. is proceeding with plans for sale of packaged unit based upon the design developed. This amazing new safety aid will meet low-cost needs here and abroad. Volume sales throughout the world will cut individual cost to you.

RECOMMENDED ACTION: Start planning for additional low-cost TVOR facilities so that you can improve safety and regularity of scheduled service under all weather conditions.

Estimated delivery of new Wilcox TVOR units—beginning before 31 December 1952. Contact us immediately for complete information!

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Editorial

Report to Uncle Joe

(We have just intercepted a secret report to Joe Stalin from one of his operatives in the U.S. and we thought you'd like to take a peek at it.—WAYNE W. PARRISH*):*

Hon. Josef Stalin
The Kremlin, Moscow
From: Operative Z-2—USA
Subject: Serial Report No. 345—Aircraft

My dear Marshal Stalin, I regret very much that this latest report on my North American assignment has been delayed, but we have had a few difficulties here. I have had to replace a few agents here and there and, if I may beg pardon for saying so, the assignment given to me has not been an easy one.

But I can report much solid progress. The attention of the American people is now wholly focused on baseball and national politics, and Congress is virtually out of business for the remainder of the year. There was a time a few weeks ago when I was afraid the Senate would conduct an investigation of the defense program, but fortunately for us this move has been averted.

by W. W. P.

I can report optimistically on two scores. First, the aircraft stretch-out is an assured fact. Some subcontractors have begun to suffer. There is no threat of big-scale production. Second, although this was not so easy to accomplish at first, we have achieved a very real delay in research and development work. I don't mean to boast, my dear Marshal, but I think that I and the agents you assigned to help me have succeeded very well in slowing down the entire aircraft production and research program.

As you recall, the Politburo was worried for fear the action in Korea would result in another World War II production build-up. You will recall my arguments at the time I undertook the assignment from you that Korea was not a world war and that Americans were not capable of expanding war production during peacetime to any real extent. I am grateful that the Politburo finally accepted my judgment, because my initial analysis has proved correct.

The American production success in World War II was due almost entirely to the fact that industry took over the job of producing and cut red tape, using the same techniques that it has used to build things in peacetime. I know it is difficult for the Politburo to understand how things work over here, but industry doesn't like to work for government and will only go all-out when there is a real war. I am now referring to the big industries like automobiles and steel, not the aircraft companies.

So when World War II ended, the Americans went to work to draw up emergency mobilization plans to become effective in the event of another war. This is where I guessed right. These plans called for the same utilization of big industries as in World War II. Peacetime plants would be converted as before. I knew this wouldn't work because there just wasn't going to be an all-out war. Right now, I mean. And Korea would never be accepted as a big war. So all those mobilization plans had to be scrapped; or maybe they just put them back in the files.

What a peculiar people these Americans are, my dear Marshal. I guess the Politburo still can't get over the production job they did in World War II, but when there is no big war these Americans just simply can't get worked up over military production. Some plants were re-opened but results have been very slow. Other plants have been closed, or the plans changed, and a lot of time and money has been spent with no coordination and no drive.

Ever since I received the assignment to keep the Americans from going too far with aircraft production, I have had two major objectives. One was to keep control of the program in the military itself, the other was to squeeze profits out of the aircraft industry so there wouldn't be much money left for research. It is a strange set-up over here, my dear Marshal. Except for a limited number of research contracts, the aircraft industry has to conduct its research out of the money it has left after taxes.

Lawyers at Work

I had a few doubts about succeeding on my first objective, but everything is under firm control now. Some industry people were called into Washington to start the mobilization wheels moving and for a while it looked as if the Americans were going places, but almost all of these men have now gone back to their regular jobs. They found they didn't have much control or power. This is still peacetime America. There are a few lawyers left in top places in the Pentagon, and I always say if you want to confuse anything just put a lawyer in charge of it. As long as the lawyers keep trying to administrate we have no worries.

The thing I'm really proud of is how I have held up research programs. You'll be interested in how this was done. It was simple. I started with that old moth-eaten crusade of take-the-profits-out-of-warmaking and did it work! With the help of some speeches in Congress and some newspaper columnists and the usual crowd we can always count on, we stirred up enough fuss that Congress decided that profits after taxes for defense industries should be limited to 15%.

This wasn't bad as a starter, but 15% is much too much, so we kept the campaign going and pretty soon the Defense Department lowered that 15% to about 7%, and from then on it's been easy. Last year the aircraft industry got as low as 2% profits after taxes, and of course this means there was very little money available for research. I know the Politburo won't understand this, but all other industries were permitted to do a lot better. Only the aircraft builders

were really pinched. That is part of my strategy. So long as other industries aren't hurt much, they aren't going to support the aircraft manufacturers' attempts to get more money. And the manufacturers don't dare scream these days. These American military fellows don't like criticism.

Of course there is some research going on, because the Air Force and the Navy let out contracts, but I figure we've stalled research by three or four years just in the past twelve months. You see, when production figures didn't go upward, Congress put the heat on the military. So the military, in turn, diverted research money to production.

The only thing I've had to fear, really, is that the Americans might wake up and separate production responsibility from the military, just as the British do. But so far there has been no great demand for such a separation, and so long as the generals, who are trained to fight, also have charge of planning and procurement and production, we have no worries. They're all empire builders, as you know from experience at home, my dear Marshal. But at home you know how to handle those matters.

With the vital help of my agents, I've been able to multiply paper work far beyond expectations. It now takes months instead of days to route approvals through channels. Even the logistics are favorable. In 1776 the Americans moved supplies to the field command at a speed of one and a half miles per hour. The latest figure, which I obtained from a good inside source, is three and a half miles per hour. These Americans think everyone else in the world is slow, but they aren't so hot themselves, if I may use one of their expressions.

You'll enjoy this illustration, too. One aviation company which employed 20,000 people in World War II had only 26 military personnel assigned to it then. These included inspectors. Today that company employs 5,000 people and has 125 military personnel. Inspectors everywhere. Tons of paper work. The management is being driven crazy. You'd really get a laugh out of it. Just put a barber into a uniform and make an inspector out of him overnight, and you've got things bawled up for sure.

Our long-range program for forcing the American aircraft builders into nationalization is moving right along, although we soft-pedal any mention of it. The steady integration of the bumbling military into control of plants is virtually complete. Industry is now unable to undertake extensive research and development programs except for what they can obtain from contracts. The military is telling Congress that industry is to blame for lack of production. It's only a matter of time.

Of course I in my humble position do not pretend to know your timetable. I can report, however, that as far as my assignment is concerned, everything is favorable. There is no way for the American aircraft industry to survive a knockout blow within two, or perhaps three, years.

Always yours faithfully,

OPERATOR Z-2—USA

P.S. If I may ask a personal favor, my dear Marshal, is there anything you can do to curtail the flow of memos to me from the Politburo? I am spending too much of my time answering questions from Moscow.

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Flexibility is an important feature of the Slumberyde. It is adaptable to a wide variety of seating arrangements, can be faced forward or aft, on either side of the ship. This seat is particularly adaptable to a unique type of installation that permits attaching, detaching, or spacing the seats with ease to meet pay-load requirements. The back folds forward to simplify handling and to facilitate passenger-cargo operations.

AEROTHERM seats are designed so that small detail parts, rather than whole major assemblies, can be replaced at scheduled stops quickly, easily, and inexpensively. The Slumberyde is contoured to fit the Douglas DC-4 and DC-6, Boeing Stratocruiser, and Lockheed Constellation.

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Letters

Letters should be addressed to The Editor, American Aviation Magazine, 1025 Vermont Ave., N.W., Washington 5, D. C. Anonymous letters will not be printed, but names will be withheld upon request.

DUTCH UNCLE

To The Editor:

CONGRATULATIONS ON YOUR FIFTEENTH ANNIVERSARY IN AVIATION PUBLISHING STOP ENTHUSIASM YOU DISPLAY FOR NEXT FIFTEEN YEARS IS EXCELLENT AUGURY FOR YOUR CONTINUED IMPORTANT SERVICE AS AIR TRANSPORT'S INDEPENDENT DUTCH UNCLE.

WILLIAM P. HILDRED
Director General
International Air Transport Association

•

PORT ARTHUR HEARD FROM

To The Editor:

The attached page [Airport News Digest] comes from your issue of June 9.

Jefferson County Airport is Beaumont-Port Arthur.

The airport is closer to Port Arthur than it is to Beaumont.

How could you overlook one of the greatest oil refining centers in the entire world?

EDW. D. RAPIER
Austin & Fifth Building Corp.
Port Arthur, Texas

(CAA's National Airport Plan, our bible on such matters, locates Jefferson County Airport in Beaumont with no reference to Port Arthur.—Ed.)

•

WHOLEHEARTED

To the Editor:

I was very interested in the observations regarding small town airline station managers and agents versus the big-city boys, contained in your "Airline Commentary" column of June 9th.

As one of the smallest scheduled airlines, we subscribe wholeheartedly to those sentiments, and are taking the liberty of reproducing the comments in our house organ.

D. S. GETCHELL
General Traffic & Sales Mgr.
Lake Central Airlines
Indianapolis, Indiana

•

ENTHUSIASM

To the Editor:

With interest and enthusiasm, we read the letter quoted by you in your article appearing in the June 9 issue of AMERICAN AVIATION.

We wholeheartedly agree and appreciate the fact that someone, at last, has acknowledged and favored the versatility of the Small Station Agent.

F. M. PETERS
National Airlines
Valdosta, Georgia

•

MORE CHANNELS FOR WILCOX

To the Editor:

Reference is made to your article "IATA Experts Probe Flight Radio Problems" as reported by your Richard G. Worcester, page 24, issue of 9 June 1952.

Quoting paragraph 5 of column 3, "The symposium did not feel alarm at the equipment side of this channel demand. The ARC-1, modified, handles 19 channels, the British STRA-12A 23 channels and the ARC-3, modified, 24. Further ARC-1 modifications and the Wilcox handle 50 channels and the STR-12C and Marconi provide 70 channels, and the Collins, Bendix and other U. K. units provide up to 140."

We find the above information, as related to our products, to be inaccurate, since our company has not offered less than the 70 channels which were available in our earlier Type 361A VHF Airborne Equipment. Our new Type 440A VHF Airborne Communications System, available commercially since 1950, provides 180 channels of VHF, 118 to 136 MC.

In that this article would place our equipment in the obsolete category, we feel that a rather severe injustice has been done, in that it reflects unfavorably on our company by inference that we have not kept abreast of developments and customer requirements.

DONALD E. BUSSE
Wilcox Electric Company, Inc.
Kansas City 1, Mo.

(We regret that this error occurred. The report, as indicated in the text, was received from a correspondent who attended the IATA sessions in Copenhagen, but at this date it is impossible to tell where the misinformation was introduced. The incident is particularly unfortunate because the advanced Wilcox equipment concerned is widely recognized in the industry.—Ed.)

•

SAFETY REPORT

To the Editor:

As a commercial airline pilot any information on flight safety is of extreme interest to me. Your article, "How Much is Greater Flight Safety Worth," appearing in the May 26, 1952, issue of AMERICAN AVIATION, attracted my attention. This article has stimulated my desire to read and study the entire second annual report of The Cornell Guggenheim Aviation Safety Center. Perhaps you can tell me, and others who may be interested, if and from whom the report can be obtained.

EDWARD R. WATSON
Miami 44, Florida

(Reader Watson, and anyone else who is interested in the Safety Center's second annual report, can address his request to the Cornell-Guggenheim Aviation Safety Center, Cornell University, Ithaca, New York.—Ed.)

•

Books

BASIC AERONAUTICS, *by Merrill E. Tower. Aero Publishers, Inc., 2162 Sunset Blvd., Los Angeles 26, Calif. 252 pages. $3.70.*

Although written for use in high school and junior college, this is a good basic text on theory of flight, meteorology, navigation, and general aviation for any aviation novice or air age enthusiast who feels the need for review.

Well illustrated with charts, diagrams, cartoons, and photographs, the book is divided into five parts, including the airplane, the pilot, the weather, navigation, and local, national, and international aviation. All categories are described and simplified in direct and concise writing.

It should make an excellent reference for primary questions on theory of flight, engines, aircraft structures, helicopters, and weather forecasting and information. Included at the end of each chapter are study questions to help summarize the preceding text. Aviation occupations and job opportunities are analyzed in a chapter .

The book has been awarded an "Aeronautical Book Citation" by the Institute of Aeronautical History, Inc., because it is "well written, well named and well welded to serve as an essentially useful and outstanding educational book for all those who belong, as most do, to the Air-Age Century of our present world."

•

Obituary

WILFORD R. MAY

Wilford R. May, manager of Canadian Pacific Airlines Repairs Ltd., at Calgary, Alberta, died of a heart attack while on a mountain hike on June 21.

May joined Canadian Pacific Airlines after World War II as director of development and served until May, 1951, when he was appointed manager. A World War I ace and holder of the Distinguished Flying Cross, he served in World War II as director of three training schools that CPA operated for the British Commonwealth air training plan. He also was responsible for creating the first paratroop rescue training course.

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Another AiResearch First!
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This new-type oil cooler can withstand 1800 lbs. fuel pressure, a very high rating.

Today AiResearch manufactures 66 different types of heat exchangers to equip nearly every high speed, high altitude airplane of United States design. They include fuel-oil coolers, air-oil coolers, air-to-air heat exchangers and special equipment for cabin heating, cooling and moisture control.

•

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Meet Your Editors

Perreault

MEET William D. (for Daniel) Perreault, better known as Bill to his many hundreds of friends in the industry. Bill was recently appointed managing editor of AMERICAN AVIATION and in addition to these duties still writes his popular "Extra-Section" column and original feature articles.

Stop in and meet Bill, next time you're in Washington. He's a very interesting man to know. You'll see a sturdy, unassuming New Englander who has one of the most disarming grins found in the aviation field today.

Bill's career was launched right after his high school days, when he went through a Providence aeronautics school, taking licenses in aircraft and engine mechanics. Afterward he joined Pratt & Whitney as a production test engineer. (But we'll bet few people know that Bill also studied law for several years at La Salle Extension University.)

Next, American Airlines claimed Bill for five years. Here, he personally trained practically all of American's flight engineers for its military C-54 operation, then instructed pilots on the use of DC-3 equipment. The Air Transport Command used his services during this time on special project work. At the ATC's far-flung bases from Natal in Brazil to the Azores, Bill kept busy training military and airline personnel in the operation and maintenance of C-54 equipment. In addition, for American, Bill was supervisor of traininig aids and of military maintenance manuals.

After this period, Bill went to Colonial Airlines, supervised their maintenance training and wound up as chief inspector. Then AMERICAN AVIATION sought his valuable experience and made him technical editor. Bill was in this capacity for the past four years during which he set the enviable record of attending *every* major engineering, operations, and maintenance conference held in the industry.

When Bill isn't at the editorial offices, or flying to the industry's key centers for first-hand information, you can find him snugly settled in a neat house in a nearby Maryland suburb, with wife Barbara and his children, Janet and Bill, Jr., ages six and four respectively.

* * *

Back in 1944 Bill Perreault first subscribed to AMERICAN AVIATION and renewed year after year, because he knew how useful this leading newsmagazine was to his aviation career.

If you are not now a regular subscriber, write to Bill and he'll be glad to tell you how AMERICAN AVIATION can help you on the job. Then subscribe to this leading newsmagazine of the industry. Rates are five dollars a year, two years for eight dollars, three years for ten dollars. When you mail your order, please include job title, company connection, and mailing address. (If you already subscribe, give a subscription to a friend or associate in the industry!)

The address: AMERICAN AVIATION, 1025 Vermont Avenue N. W., Washington 5, D. C. . . . One of the airfleet of five aviation publications issued by the world's largest aviation publishers.

When & Where

July 8-12—Aviation Writers Association, Annual Convention, Ambassador Hotel, Los Angeles.

July 10-12—National Assn. of State Aviation Officials, Summer Board Meeting, Alpine Rose Lodge, Salt Lake City, Utah.

July 14—Corporation Aircraft Owners Assn., St. Louis Division, Regional Air Safety Forum, Kratz Airport, St. Louis, Mo.

July 16-18—Institute of the Aeronautical Sciences, Annual Summer Meeting, Los Angeles.

July 17-18—Women Flyers of America, National Convention, Chattanooga, Tenn.

July 25-26—Parks College of Aeronautical Technology of St. Louis University, Silver Anniversary Homecoming, East St. Louis, Ill.

July 30-31—University Aviation Association, 5th Annual Meeting, Ball State Teachers College, Muncie, Ind.

Aug. 11-13—Society of Automotive Engineers, West Coast Meeting, San Francisco.

Aug. 28-30—National Aeronautic Association, Annual Meeting, Fort Shelby Hotel, Detroit.

Aug. 28-31—Air Force Association, Annual Convention, Detroit.

Sept. 8-10—3rd National Standardization Conference, sponsored by American Standards Assn., Museum of Science & Industry, Chicago.

International

June 30-July 13—International Soaring Championships, Madrid, Spain.

Aug. 19—ICAO, Aeronautical Information Services (AIS), 1st Session, Montreal.

Aug. 20-28—8th Int'l Congress on Theoretical & Applied Mechanics, Istanbul.

Sept. 1-7—Society of British Aircraft Constructors, Annual Display, Farnborough, England.

Sept. 15-19—IATA, Eighth Annual General Meeting, Geneva.

Sept. 16—ICAO, Statistics Division (STA), 2nd Session, Montreal.

PAN AMERICAN'S DC-6B's

in new tourist service fly with SKYDROL

Photo courtesy Pan American World Airways System

"The Rainbow," Pan American World Airways' new tourist service, is up there with everything but fares. The brand-new Douglas DC-6B's offer the "tops" in luxury, speed and safety. And pre-arranged, all-inclusive tours to Europe are within the budgets of average Americans!

Monsanto Skydrol serves in the cabin superchargers and throughout the hydraulic systems of these mammoth Pan American ships. It makes an important contribution to safety. Skydrol is the non-flammable-type hydraulic fluid that now serves 13 air lines and has almost a million hours in the air to its credit.

Skydrol exceeds the nonflammability requirements of AMS 3150 . . . has more than double the lubricity of ordinary hydraulic fluids . . . is stable at operating temperatures and pressures . . . is noncorrosive to aircraft metals . . . is nontoxic.

It's easy to switch to Monsanto Skydrol, the one fluid that is suitable for every hydraulically operated part of your planes. For further information, write for the new, 24-page Monsanto booklet, "*Skydrol Nonflammable-type Hydraulic Fluid for Aircraft.*" MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 South Second Street, St. Louis 4, Missouri.

Outside the United States, Monsanto Skydrol is obtainable at key airports on international routes through marketers of ESSO Aviation Products.

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Never Underestimate the F-86

THERE IS ONE monotonously recurring "news" story, apparently a favorite with editors, which is becoming increasingly irksome. It is all the more irksome because it was first fostered by official Department of Defense spokesmen, who, it is feared, did not believe it themselves. We refer to the story, which appears with clockwork regularity about once a week: that the Russian designed MiG-15 fighter is a far superior piece of equipment to the North American F-86 Sabre.

This item, suspiciously, first made its appearance about the time the 1953 budget was presented to Congress, which gives rise to the thought that perhaps it was designed to create an atmosphere of sympathy for the Air Force because of the "little" money it had to spend for newer, more advanced types of aircraft. If it was, it failed miserably in its purpose, for instead of clucking sympathetically, an irate Congress demanded "How come?" after all the money it had appropriated for new planes.

At any rate, there seems to be little basis for the story. As a famous politician used to say, "Let's look at the record."

Box Score to Date

Here is the record as of June 20, the latest date for which figures are available at press time: In air-to-air combat, with no outside influences such as ground fire involved, the Air Force has lost 35 F-86's to the MiG's. At the same time, the F-86's destroyed 299 MiG's and listed another 46 as "probables." The "kills" are well substantiated; the probables are open to some question. But even assuming that only half of the probables were actual kills, the record gives the F-86 a superiority ratio of better than nine to one over the redoubtable MiG.

It is hard to reconcile that box score with the claims that the MiG is a far superior airplane. There are at least 299 Communist pilots who probably have a different view on the subject, but unfortunately their testimony is not available.

The sponsors of the MiG superiority line have an answer for the cold figures of the box score. The F-86's record, they say, is due to two major factors: the USAF pilots are better trained and the F-86 has superior armor and gunsighting equipment. However, they add, the MiG can outperform the F-86, at least at certain altitudes and in certain maneuvers.

There is little argument on the score that USAF pilots are well trained, but it is hard to believe that this training alone could be responsible for the nine-to-one ratio, unless the Communists are sending up the Chinese equivalent of Civil Air Patrol cadets. Quite the contrary, most of the reports from combat pilots indicate that the Communist jet jockeys are of a reasonably high caliber. It is safe to assume that a certain portion of the F-86's superiority ratio is due to greater proficiency on the part of USAF pilots, but our research indicates that it must necessarily be the smaller portion.

If that assumption is acceptable, it follows that the F-86, in air-to-air combat against the MiG, is actually a better airplane than the MiG, not an inferior one. Of course it has superior armament and greater resistance to damage. But these are not extra added attractions; they are integral parts of a jet fighter.

The reason for the existence of a fighter plane is to knock other airplanes out of the sky. If it can do that successfully (and a nine-to-one ratio seems reasonably successful), then what is the long-run difference if it gives away a slight advantage in certain performance categories to its opponent? Obviously, judging again from the box score, the categories in which the MiG holds its alleged advantage must be relatively unimportant. To paraphrase the Bible, what doth it profit a plane to turn on a dime if it suffers the loss of its empennage?

Remember that the superior armor and gunsighting equipment in the F-86 means added weight, which in turn means a compromise in performance. If the MiG had these advantages, would it still be able to "outperform" the F-86? And if the two planes met on an air battlefield at equal weights what would be the box score? We have the suspicion that the MiG would find itself on the short end of a ratio considerably worse than the current nine to one.

There is still another factor to be considered, one which has gone practically unmentioned in all the stories of the MiG's prowess, and that is the Communists' ability to select the locale of the battleground. It is a factor that adds even more to the F-86's stature.

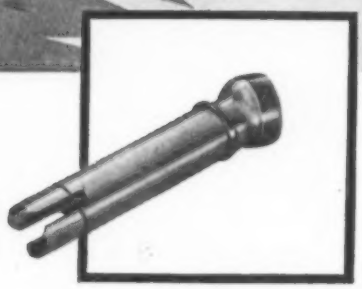
Due to the very curious political situation imposed upon the USAF, all of the MiG—F-86 encounters have been fought in an area close to the Communists' home bases. Thus, the MiG's, operating 50-100 miles from their bases, can enter the encounter lightly loaded, with just enough fuel to fight and get home. The F-86's, on the other hand, are operating from bases 300-400 miles from the usual battleground area, and they must carry enough fuel to get back to base after the encounter. Fuel, at six pounds to the gallon, means weight, and weight again means performance sacrifice. The fact that the F-86's have been giving away this weight advantage in all the battles to date makes their nine-to-one superiority seem even more impressive.

The Only Basis

Any airplane can outperform any other airplane in some given category. A piston-engine Mustang, for instance, can turn inside a MiG; it cannot, of course, outspeed it. A liaison plane, or even a helicopter, can outmaneuver a MiG at tree-top height, but would not have much chance in a dog-fight. It would appear, then, that the only basis for comparison of superiority of two planes is the outcome over a series of encounters. On that basis the F-86 is a far superior airplane to its Russian-designed rival.

We have been cautioned repeatedly not to underestimate the aircraft design capabilities of the enemy, and certainly that is a sound philosophy. But on the other hand, there appears little profit in overestimating them or in chanting their praises unduly. Conversely, there appears to be little profit in undermining public confidence in our own design engineers by relegating planes like the F-86 to the category of inferior weapons. When the MiG, or any other Communist plane, attains a nine-to-one superiority ratio over the best we have to offer, then we can start worrying.

. . . James J. Haggerty, Jr.



this "sleeve" gives valves a steady hand

For clock-like precision in up-and-down motion, valve tappets require smooth-as-glass guides—"sleeves" tailored to 5/10,000 of an inch for snug, exact fit. For such precision work with a variety of products, leading manufacturers depend on Lycoming's production skill and resourcefulness.

Whether you require precision machining, high-volume production, product development—or air-cooled power for aircraft or ground applications—look to Lycoming! Long famous for aircraft engines, Lycoming offers extensive facilities and well-rounded experience.

To function precisely, an aircraft engine valve needs steady tappets. For a "guide" to steer tappets true, **Pratt & Whitney Aircraft called on Lycoming for precision production.**

For a more complete story on Lycoming's varied activities and facilities, write—on your company letterhead—for the interestingly illustrated booklet "Let's Look at Lycoming."

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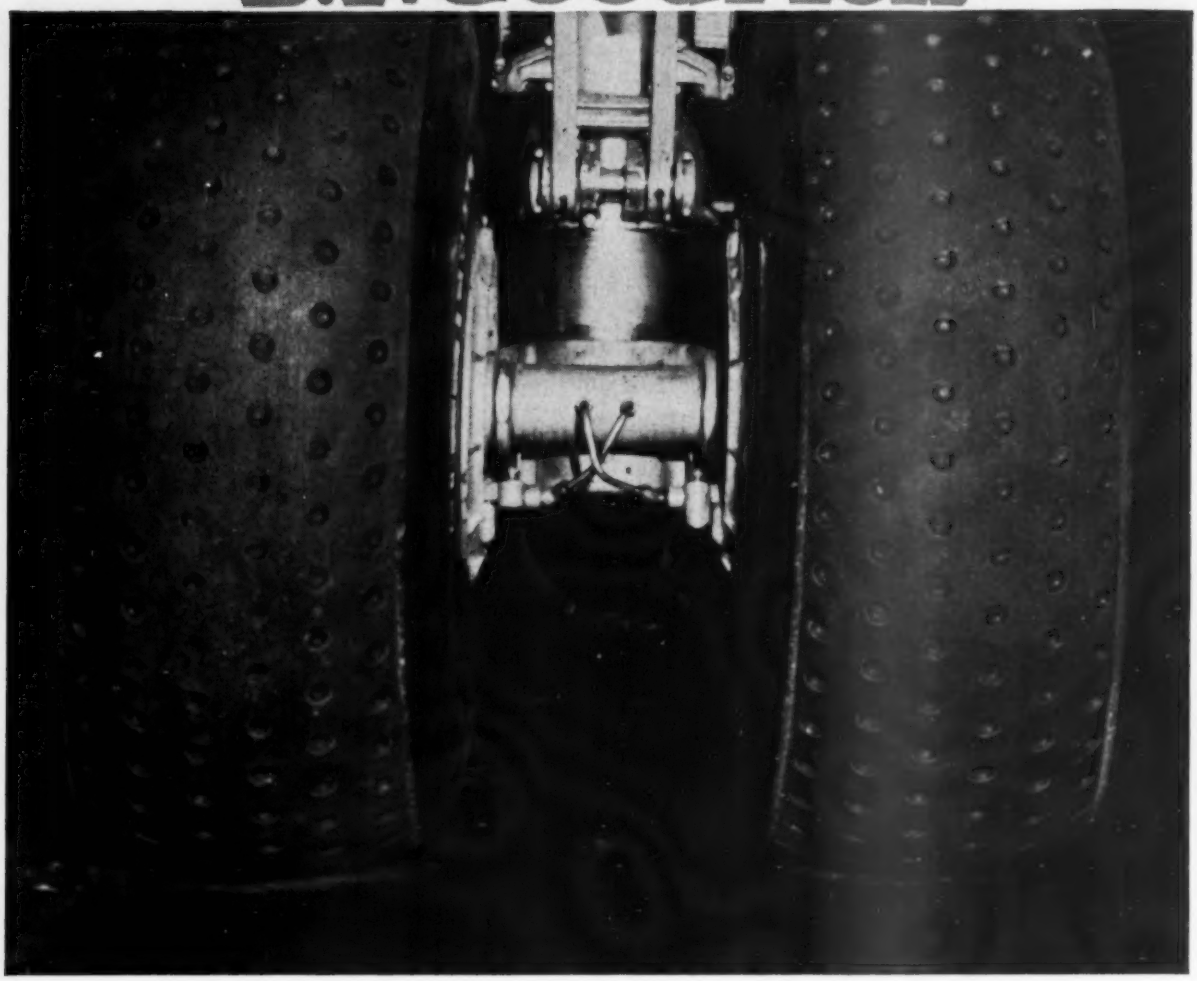

20 airlines switch to new B. F. Goodrich dimpled tire

WE RECENTLY ANNOUNCED that nine airlines had tested and switched to the new B. F. Goodrich dimpled tire. Now eleven other users report that they have adopted it as standard equipment.

One airline reported 20% more landings on DC-4's. A typical report from tests on a fleet of DC-3's: "We removed the tires after 400 hours, 1200 landings. In the process of recapping, we discovered that there was enough rubber left for about 100 hours more, a total of 1500 landings."

The new B. F. Goodrich dimpled tire has a longer lasting cord construction which cuts down separation. It has a new tread with dimple-like indentations in the rubber. These dimples provide better distribution of the tire load and reduce exposure to tread cutting. Retreading is simpler. Carcass rejections are fewer.

The airlines landing on BFG dimpled tires include: American, Braniff, Capital, Central, Continental, Empire, Frontier, Hawaiian, Mid-Continent, National, Northeast, Northwest, Pan-American, Philippine, Pioneer, Southern, Southwest, Trans-Texas, United and West Coast.

B. F. Goodrich is now producing the dimpled tire in seven airline sizes. The new, longer wearing dimpled tire is another example of BFG's leadership in rubber research and engineering. Other B. F. Goodrich products for aviation include wheels and brakes; heated rubber; De-Icers; Avtrim; Plastilock adhesives; Pressure Sealing Zippers; inflatable seals; fuel cells; Rivnuts; accessories. *The B. F. Goodrich Company, Aeronautical Div., Akron, Ohio.*

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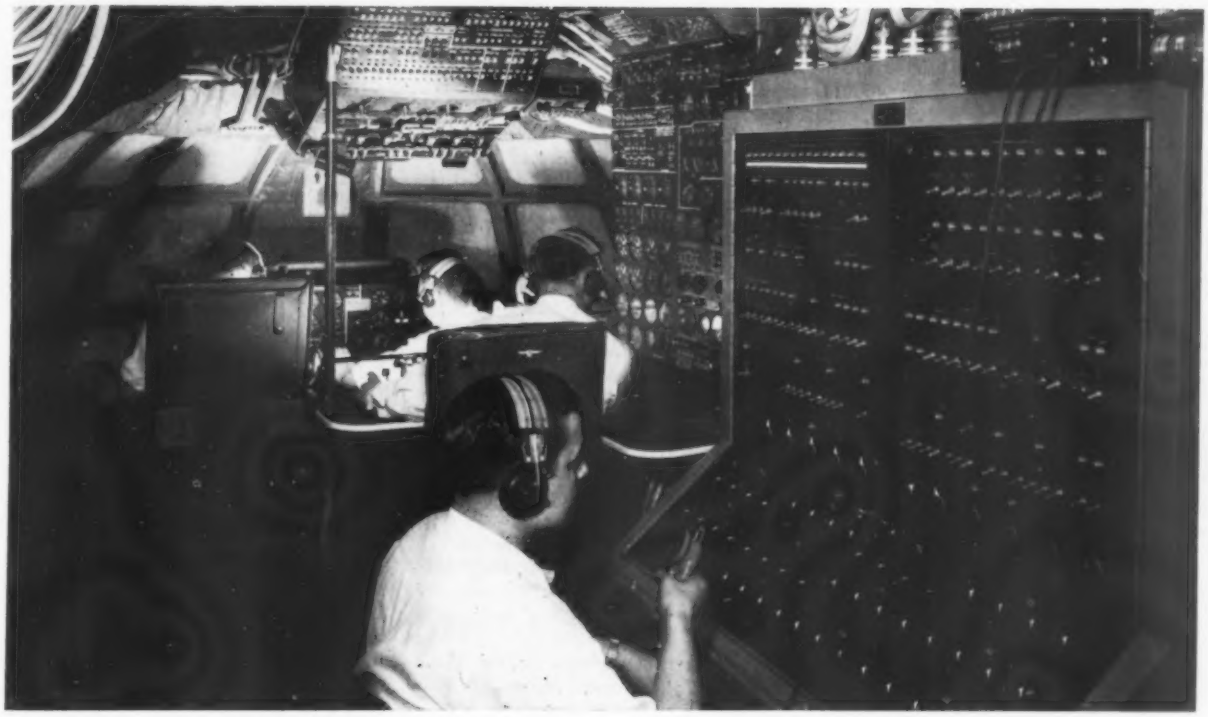


SIMULATOR for Boeing KC-97A is latest Curtiss-Wright unit built for Air Force.

Civil Pilots May Get Flight Simulators

Use could save airline $380,000 yearly in costs of crew checks, plus $2.8 million in added revenue.

By Robert M. Loebelson

A TWOFOLD PROGRAM to make commercial flight simulators available to transport pilots, both those working for airlines and those flying for private corporations, is now being unfolded. The drive is being spearheaded by the President's (Doolittle) Airport Commission, which is promoting simulators as an aid to safety, and Curtiss-Wright Corp.'s Electronics Division, Carlstadt, N. J., which points out that its Dehmel flight simulator is a sound economic proposition.

The Airport Commission has recommended that the airlines study the greater use of electronic flight simulators, pointing out that the principal argument for the simulator as an aid to airport safety lies in its potential ability to prevent the type of crash stemming from a take-off or landing emergency. As the Doolittle report puts it, "Air crews, when faced with these emergencies, will occasionally 'crash' in the simulator—just as they would have crashed in the airplane. But in this instance, they can study their errors."

Action Essential

The Doolittle Commission's analysis indicates the initial cost of 10 simulators, jointly owned and housed in a single building, would be about $5 million and the average annual operating cost would be about $500,000 more. It declares, however, that "The program should, in time, become self-supporting," and concludes that "its early establishment is essential."

In its own studies of the economics of flight simulators, Curtiss-Wright is willing to let the financial facts speak for themselves. It subordinates the other advantages of these devices to the one that cost-conscious airline executives can understand: In a five year period, says C-W, the use of a flight simulator will not only save an airline $386,250 in the cost of periodically rechecking pilots and first officers, but will also increase the potential revenue of an aircraft such as a Douglas DC-6 or a Lockheed L-1049 Constellation by $2,812,500. In addition, flight engineers will receive their training at no cost.

Here's how the company's Electronics Division arrived at these figures:

The direct operating cost of a plane like a DC-6 or L-1049 is $350 an hour. Regulations provide that airline captains must receive two checks a year at 1.75 hours per check while first officers must get one annual 1.75 hour flight check. Thus the cost of checking 100 pilots at 3.5 hours each at a cost of $350 an hour would be $122,500. Similarly the cost of checking 100 first officers at 1.75 hours each at $350 an hour would be $61,250.

In other words, the direct cost, using only an airplane, for checking 100 pilots and 100 first officers would be $183,750 annually.

Since such a plane has a potential gross revenue of $1,500 an hour and since 525 hours of non-revenue flying would have to be put in to take care of these checks, an airline would lose an additional $787,500 each year. Adding the direct cost and the lost revenue indicates the use of planes alone would cost $971,250 for training 100 crews.

A simulator like the one proposed by Curtiss-Wright would have an estimated operating cost of $67.50 an hour. This breaks down as $30 an hour for maintenance, power, spares, instructors, etc. and $37.50 an hour for amortizing the $750,000 simulator over five years.

The electronics division is certain that use of a simulator would permit the training of 100 crews in eight hours of simulator time, plus one hour a year for pilots and 30 minutes for first officers in an actual plane. Thus the cost of checking 100 pilots in a plane for one hour a year at a cost of $350 an hour would be $35,000 and 100 co-pilots for 30 minutes would be $17,500. Each of the 100 crews could spend their eight hours in the simulator together, and at $67.50 an hour, the total annual cost for the simulator would be $54,000. This brings the direct cost per year of simulator and plane for 100 crews to $106,500. To this amount must be added the 150 hours of non-revenue flying at the aforementioned $1,500 an hour for a total lost revenue of $225,000. Adding the two figures gives the total cost of both the airplane and the ground synthetic training device as $331,500 a year.

$386,250 Savings

The difference between the direct cost of the plane alone ($183,750 a year) and the plane plus the simulator ($106,500) is $77,250 a year. Over a five-year span the direct-cost savings would thus total $386,250.

By the same token, use of the plane alone results in an annual lost revenue of $787,500. But the combination of the plane and simulator means only an annual revenue loss of $225,000. This difference of $562,500 adds up to $2,812,500 in five years.

After presenting these figures, C-W's sales manager for the electronics division, Ward D. Davis, usually asks the question, "Can any airline in this country or abroad afford to pass up the use of flight simulators?"

But Davis, who is leaving C-W to undertake an Air Force Air Research and Development Command simulator research contract effective July 15, is not yet ready to rest his case. He believes that comparable savings are obtainable in transition training, that is the training required to teach crew members to fly a new aircraft type. He points to the forthcoming Douglas DC-7, a potential new local service prototype and even the still-in-the future U. S. jet transport.

Early Delivery

"As soon as the manufacturer standardizes the cockpit for each of those aircraft," says Davis, "Curtiss-Wright can start building simulators to duplicate them. And we can deliver them 60 days before the airline receives its first model." Under this set-up, he adds, pilots and other crewmen will be thoroughly familiar with the new plane when it is delivered and the airline will be operating it much earlier than under normal circumstances.

In cases where an airline does not obtain a flight simulator for transition training, this training must be accomplished in the new plane itself. This latter system has several drawbacks, including:

- **Unavailability** of the plane because of scheduling requirements.
- **Training delays** caused by poor weather.
- **Mechanical delays.**
- **Traffic delays** at busy airports.
- **Dependence on outside radio aids** (omni-ranges and ILS) which may be inoperative when that type of training is desired.
- **Danger of damage** to the plane while executing unusual maneuvers plus extra wear and tear on the plane.
- **Expense of** such a program when a large number of pilots and co-pilots is involved.

In addition, say C-W engineers, flight simulators have these other advantages:

- **Savings on fuel** during transitional training, check flights, and the flying resulting from a turnover in personnel.
- **Crew training.** Members develop correct cockpit habits in a shorter time.
- **Crew coordination.** More hours can be spent perfecting teamwork.
- **Experimentation.** New operational techniques may be investigated without fear of a crash.
- **Aircraft risk.** Danger to the plane from handling by training crews which have not checked out on the plane are diminished.
- **Emergencies.** Thorough training for emergencies make crew responses almost automatic.

Four Builders

If some or all of the domestic and foreign airlines should decide that flight simulators are a wise investment, either individually or in pooled purchases, they will find at least four manufacturers in the U.S. who are experienced in building them.

Curtiss-Wright, of course, feels it is in a position to turn out a superior product because of the fact that it holds all simulator patents and has turned out or is building simulators for the USAF for the Convair B-36, Douglas C-124, Fairchild C-119, and Boeing B-50D and C-97A. C-W has also built Boeing 377 simulators for Pan American World Airways and a McDonnell F2H-1 replica for the Navy.

Pan Am, the only U.S. airline which has used the C-W flight simulator, is quite happy with the results. Transition training from flying boats to the Constellation was 25.2 hours of flying time in the airplane. But the Stratocruiser simulator enabled PAA to reduce actual flight time to eight hours per crew. As for proficiency training, this, too, has been reduced to 0.7 hours in the Stratocruiser itself, with the simulator taking up the slack.

The Carlstadt firm's major competitors in the simulator field include Link Aviation, producing duplicates of the North American SNJ-5 and F-86, Boeing B-47B and Douglas F3D; Engineering and Research Corp., building simulators for the F-86, Douglas AD-1, Grumman F9F and Lockheed P2V; and Westinghouse Electric Corp., which will also build an F-86D simulator.

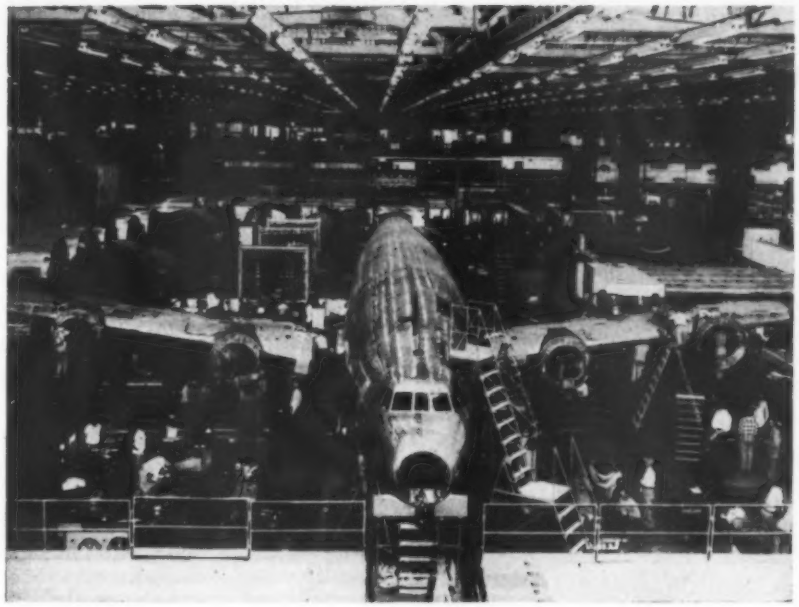
The Navy and Air Force, incidentally, recently acknowledged C-W's claim that the other companies were infringing on its basic patents and C-W will soon start collecting royalties on these other military simulators.

Rapid Tax Write-Offs On New Transports End

Rapid tax write-off certificates covering the purchase of new airline equipment will come to an end as a result of a new policy recently announced by Defense Production Administration. The only possibility of changing this situation would be for the nation's airlines to convince the Defense Department that the Civil Air Fleet Reserve Plan, calling for 400 four-engine planes to be made available to the armed services on 48 hours' notice, should be expanded.

John H. Martin, DPA Administrator for Construction and Resources Expansion, said that expansion goals have been established for various types of facilities. In cases where these goals have been filled, "applications for certificates of necessity for additional expansion will be denied."

Defense Air Transportation Administration officials, who are responsible for recommending five-year certificates covering newly purchased planes, said the Reserve Plan is now considered the complete expansion goal.



Forerunner of civilian versions, scheduled to enter service this year, the Navy's R7V-1 Super Constellation moves down the Lockheed assembly line. New compound engines will enable it to hit 370 mph, cruise near 340. R7V-1 may be used as to transport (106 passengers), hospital plane (73 litters), or cargo carrier (17½ tons).

UAL, TWA, EAL Return to Newark

United Air Lines, Trans World Airlines, and Eastern Airlines were the first three carriers to resume limited operations at newly reopened Newark Airport.

United began daylight-only operations first on June 25 with three daily DC-3 flights in and out scheduled. TWA and EAL began on July 1, with TWA transferring five round-trip flights per day from Idlewild, one running after dark. Eastern put 20 daily flights into schedule, with five of them at night.

Referring to the three-mile-visibility, 1,000-foot-ceiling limitation, C. R. Smith, American Airlines president, stated: "These minimums are substantially higher than those in effect for comparable airports in other sections of the country. The reason is understandable. We agree with the regulations and will follow them. It is, however, inescapable that the result will be a greater than normal number of cancellations and a less dependable public service. There cannot be any substantial improvement in dependability until the new runway at Newark is opened." A new instrument runway is scheduled to be in operation by November 1.

Army Buys Three Aero Commanders

The three twin-engine Aero Commander light transports purchased from Aero Design and Engineering Co. by the Army will be used for field testing and evaluation. In order to determine the planes' suitability for operational Army use, they will be tested for such uses as liaison and courier work, litter carrying, and transportation of light cargo, as well as for use as staff transports.

The Army Field Forces will carry out the trials at Board No. 1, Fort Bragg, N. C.

Equipment Crisis Seen As BOAC Traffic Rises

British Overseas Airways Corporation trans-Atlantic traffic is increasing to such an extent that the company will be hard pressed for equipment to handle its traffic needs in the two years before the Bristol Brittanian and Avon-engined Comet II transports are delivered. This statement was made by Sir Miles Thomas, board chairman of BOAC. He added that the tourist service had not adversely affected BOAC's first-class service over the Atlantic, and that the latter is actually attracting more business than ever before, most of it dollar earning.

BOAC's passenger traffic has risen 169% in the last year, he stated. Advance bookings are 97% higher than a year ago. When aviation fuel cuts caused schedule curtailment in May, BOAC carried 2,684 passengers, compared with 1,711 in the same period of 1951.

Merrill F. Redfern Dies

Merrill F. Redfern, vice-president-traffic and secretary of the Air Transport Association, died of heart trouble June 23rd. Redfern, also executive secretary of ATA's Air Traffic Conference since its formation in 1938, had been associated with ATA longer than any other employee. Prior to joining ATA in 1938, Redfern had served in United Air Lines and National Air Transport, predecessor company of UAL, since 1928.

He is survived by his widow, Louise, and two sons, William and Robert.

Profits on DC-3's Put Pioneer in Black

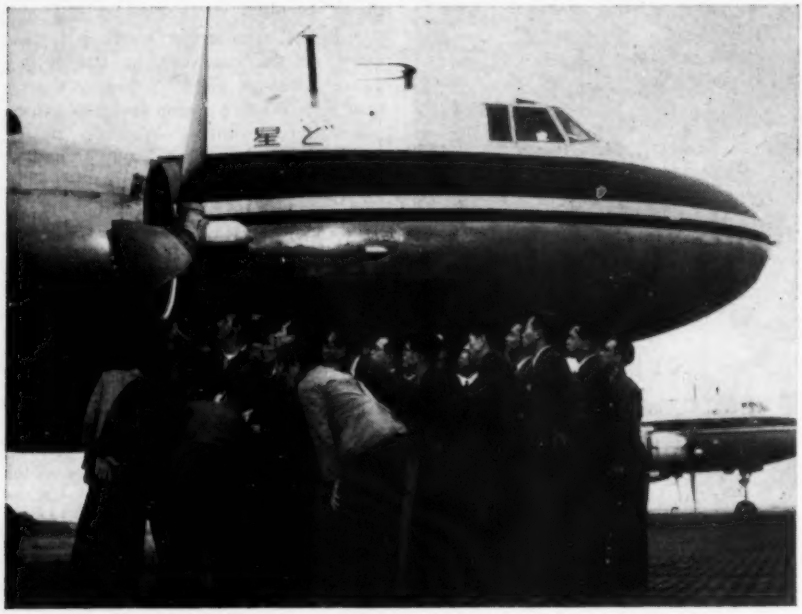
Pioneer Air Lines earned $693,991 on the sale of its 11 DC-3's, turning what would have been a $30,000 operating loss into a profit for the first five months of 1952.

The company reported earnings of $656,431 on total operating income of $1,547,902 and operating expenses of $1,577,098 through May 31, 1952, compared to earnings of $37,964 on income of $1,412,066 and expenses of $1,331,427 during the same period last year. The DC-3 profit was included in the $656,431 figure.

Offshore Buying Only For NATO Planes

Funds to purchase complete aircraft abroad apply only to planes which will be used by other NATO countries, according to USAF spokesmen. These planes will be purchased from funds allocated for foreign military aid and not from the Defense Department's budget, they added.

The Air Force emphasized that there is no plan to buy foreign aircraft (other than Canadian) for USAF use. The newly announced Mutual Security Agency program, however, is expected to influence several U.S. aircraft manufacturers who are now providing planes for use by NATO countries. Funds for these planes, which currently come out of MSA funds, will probably be diverted to European aircraft producers.



AS JAPAN PREPARES to rebuild civil aviation industry, NWA lends a hand up-dating native mechanics in postwar maintenance procedures. Here, John McGinty, NWA instructor, uses engine of Japan Air Lines plane to demonstrate a point in training session at Haneda Airport.

Civil Aviation Returns to Japan

Domestic and international routes are growing, as helicopter and air taxi operations attract interest.

AVIATION in its many phases is being revived rapidly in Japan, following adoption of the peace treaty last May.

Most recent significant development was the opening of discussions in Tokyo last week between U. S. and Japanese officials, pointing toward the opening of a Japanese air service to the United States. One company, Japan International World Airways, has already filed application with the Japanese government for operating rights between Japan and the United States, via Honolulu, with additional rights sought to Rio de Janeiro.

Taking part in the bilateral negotiations for an air transport agreement are CAB Member Chan Gurney, Walter Peck, head of CAB's foreign air transport division, and Joseph C. Watson, civil air attache for the State Department in the Far East. Gurney, as vice chairman of the group, will spark-plug the U. S. delegation, although normal diplomatic relations call for Ambassador Robert D. Murphy or a deputy to serve as chairman.

JIWA, organized by one of the largest Japanese shipping interests (Osaka Shosen Kaisha) and California Eastern Airways, hopes to start international service in October with Douglas DC-4's provided by Cal Eastern.

The company has been quoting proposed fares as much as 45% below present IATA standards: $381 from Tokyo to San Francisco, compared with a standard fare of $650, and on existing services. The operation would create an open rate situation between Japan and the U. S.

Air Carrier Service Corp., Washington, D. C., is the line's U. S. agent.

At present there is only one domestic company, Japan Air Lines, operating scheduled passenger, mail, and freight services, but other prospective operators have already filed applications with the Japan Civil Aeronautics Administration.

80% to Break Even

JAL, which has been operating between seven cities since last fall with Martin 2-0-2's and Douglas DC-4's leased from Northwest Airlines and Philippine Air Lines, has been reported deep in debt for use of the equipment. Despite monthly load factors averaging over 70%, heavy overhead and training expenses have pushed the break-even figure to 80%.

JAL has leaned heavily on Northwest Airlines for help in up-dating its personnel in postwar operating and maintenance methods. NWA is sponsoring an intensive program in maintenance procedures at Haneda Airport for Japanese aircraft mechanics, who have not worked on a plane engine since end of the war. The class of 55 mechanics includes 21 JAL employes, eight members of the Japan CAA, 10 from five Tokyo newspapers which operate press planes, and 16 native NWA mechanics.

Instructors brought from NWA headquarters in St. Paul are Ray Van Cott, John McGinty, Harry Austin, Lee Hanna, and Bob Hinkle.

After completion of the course, the Japan CAA personnel will become aircraft inspectors in rebuilding the country's civil aviation.

The language barrier was overcome in the classroom through use of tape-recorders along with interpreters. Most trainees attend school in the daytime, when a NWA instructor explains new techniques through an interpreter who is also a mechanic. The entire proceeding, including student questions, is tape-recorded.

The recording serves as a mechanical "teacher" for the evening session when it is played back. Any questions that arise and are not answered by the recording are then recorded and answered the next day.

• **A second major airline** is under consideration for Japan, promoted jointly by Pan American World Airways and the powerful Keihanshin Electric Railway Co. Application with the Japan CAA indicates the company, Nichibei (Japan American) Airlines, would parallel existing JAL routes linking Tokyo to Osaka, Fukuoka, and Sapporo, using 80-passenger Douglas DC-4 planes.

• **First postwar air taxi** operation is expected to start soon with three Cessna 170's purchased by the Oaki Aviation Co. The craft will be used for advertising, rescue work, locating fish schools, etc., in addition to charter transportation.

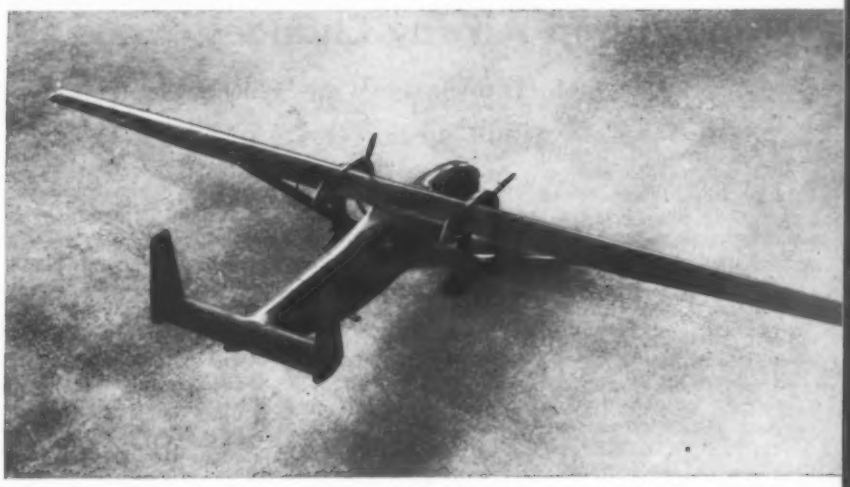
• **Helicopter operations** hold much interest and applications are on file to provide sightseeing and mail services with Sikorsky S-51 and Bell 47D craft.

• **The seven-year gap in aircraft production** can not be easily overcome, but Japan is moving to reopen its plane industry on a modern level as soon as possible. Toward this end, an aircraft mission of 10 delegates from government and former aircraft manufacturers will visit the U. S. and Western European countries to inspect new techniques and solicit aid for the reviving Japanese industry.

Two Prototypes of transport aircraft now under construction at the Hurel-Dubois plant in Villacoublay, France, have roused widespread interest. The two models, designated the HD 31 and HD 32, use struts to replace the lift sacrificed by the high aspect ratio wings. Above and below, a scale model of the HD-31. Operating cost is claimed to be 30% lower than for comparable conventional aircraft. Coach version will seat 40 passengers.

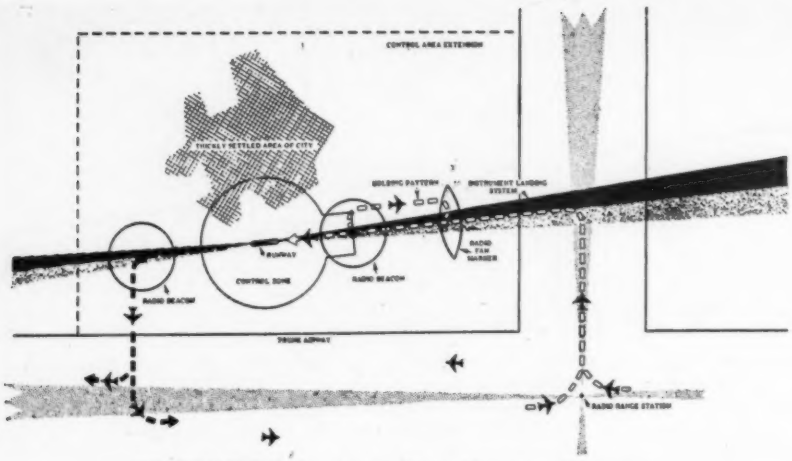
France Tries . . .

High Aspect Ratio Wings



Aspect Ratio of HD 31 is 1:20.5 Prototype may fly by end of 1952. It is designed to carry four tons on 310-mile flight, or 3.5 tons on 620-mile flight. Power plants are two Wright C7BA1 Cyclones. The HD 32 will use two P&W R-1830 engines to carry 5.3 tons 310 miles, 4.7 tons 620 miles, or 3.5 tons 1,240 miles.

Guinea Pig for the two transports was the HD 10, at left, which has been under test since 1949. French industry is impressed by success of its test flights, and hopes that design may establish France in forefront of air transport field, but still awaits reports on performance of full-size prototypes.



REARRANGED airways would avoid metropolitan areas.

Airport and Airway Changes Urged

600 mph transports with 120-130 mph landing speeds forecast within 15-20 years.

TWO principal needs of the air transport industry are airports using uni-directional runways laid out in accordance with aircraft design trends, and a relocation of airways to keep through flights away from intermediate cities, according to the President's Airport Commission, headed by Gen. James H. Doolittle.

The group's thinking on these subjects, plus a number of others, is contained in the full text of its report, recently released. It had previously issued an outline of its recommendations designed to alleviate the problem of plane accidents in populated areas.

Design trends which will affect airports are listed as:

• **Transport speeds have consistently lagged** 10 to 20 years behind world speed records. Within 10-15 years, industry should be able to build transports flying at speeds of 85-90% of the speed of sound, and within 20 years such planes probably will be in common use. This means 560 to 600 mph at altitudes at which the planes will be flown.

• **Landing speeds of 120-130 mph** are indicated in 15 years, and unless the designer improves landing and braking characteristics, this type jet plane will need a runway 8,400 to 10,000 ft. long.

• **High-speed planes will follow more shallow paths** on approaching and leaving airports, and will have larger radius of turn. This emphasizes the necessity for "planning of larger, clear and unobstructed zoned areas beyond the ends of the runways."

• **The bomber of today is frequently the transport of tomorrow** and, since at least one bomber of about 350,000 lbs. weight and a cargo adaptation of it at 320,000 lbs. exist today, it is not unreasonable to expect that within the next 15-20 years transports of this size will be in use.

With these trends in mind, the Commission emphasized its belief that one runway (or parallel runways) airport configuration is of great importance "not only from a standpoint of safety but in the interests of efficiency and future expansion."

An abrupt transition to the uni-directional pattern isn't possible, but present multi-directional airports can "phase out" extra runways gradually as the planes requiring these runways become obsolete, it said.

Its comments on the uni-directional pattern included:

• **It will save total land required.** The Commission gave one example where a parallel runway field would take 40% less land than a conventional airport and have the same end-zone protection.

• **If a single runway becomes inadequate,** additional runways should parallel the first with a separation of at least 3,000 and preferably 4,000 ft. This would provide maximum efficiency under all weather conditions for simultaneous use. Land area between runways can be used for the terminal, hangars, etc.

• **This pattern will spur development** of adequate cross-wind gear.

• **This pattern will reduce the hazard** around airports by limiting approaches and departures to two relatively narrow zones.

• **The ideal to be striven for** is an area off each end of the runway at least one-half mile long and 1,000 ft. wide "as an integral part of the airport." Beyond the runway extensions, a fan-shaped zone at least two miles long and 6,000 ft. wide at its outer limits should be established in which land use can be controlled—restricted to agricultural purposes as far as possible.

On the general subject of future planning, the Commission asserted that at the present stage of air transportation, airports may be "incorporated into regional and city development plans with the expectation of a useful life comparable to that of railway terminals and harbor and dock facilities."

8,400 For Most

Most cities, it added, will be adequately served by conforming to criteria in CAA's Technical Standard Order N6a. For normal operations within the U.S., airplane designers should concentrate on developing planes that can operate from the 8,400-ft. (sea level) runways specified in that order.

Some super-airports may be needed for transports on long-range intercontinental routes. Runways will probably be over 10,000 ft. and must support weights above 300,000 lbs. Such airports should be designed to serve (through expansion, if necessary) for an indefinite period. They will be a long way from cities, with air taxi service (possibly helicopters) replacing ground transport.

On the airways problem, the Commission said that at present airways go from point to point with little bypassing of metropolitan areas. Although through flights are high enough to cause little noise nuisance, increased traffic and increasing public concern over noise and hazards makes it necessary to "examine the case for relocating some airway facilities to avoid congestion and to reduce flying over some thickly settled areas."

Moving an airway, the report claimed, "is a practical thing, involving little construction. . . . This may be accomplished by establishing a controlled zone around the metropolitan area which would be entered only by aircraft arriving at or departing from the local airport or airports. All aircraft not destined for that particular area would be obliged to by-pass the restricted zone en route to their destination.

"The routes established within the restricted zones should be used in all weather conditions. They would be-

come as well fixed, almost, as roads on the ground . . ."

This system of express airways would also accomplish separation of holding patterns and airways, it was noted.

The Commission stated that:

• **Application of positive radar control** to civil aircraft operations in terminal areas should be accelerated.

• **Both ILS and GCA should be available** at all major airports and pilots should be required to use both, one as the landing aid, the other as monitor.

• **Eventually, planes should have** some form of light and reliable airborne radar.

• **Full use should be made of recording instruments,** both in the plane and on the ground, to obtain information on emergencies in flight.

Civil Air Regulations now permit uncontrolled VFR flights in relatively low ceilings and visibilities, even in congested areas, the report said. "In areas where there are approximately 100,000 or more aircraft operations per year, all traffic should be under positive control—regardless of the weather—when in designated control zones. In less congested terminal areas and possibly along airways, the minimum visibility and ceilings at which traffic is free to fly uncontrolled should be raised."

Other Points

Crew selection: Physical exams should be stiffened because of the pilot age problem, and a thorough study of this problem should be sponsored by the Aero Medical Association.

Inspection: The number of CAA inspectors should be raised, so that CAA can have more direct knowledge of the condition of airline crews and equipment than is now possible. More instrument flight training is desirable.

Noise: There are techniques of engine operation which can minimize landing and takeoff noise, and pilots should be required to employ them so far as may be consistent with safety. Flight patterns can be arranged to minimize noise nuisance. Substantial reduction of such nuisance is practicable.

Risk: In 1946-51, there were 6,500,000 landings and take-offs by scheduled and non-scheduled airlines for each accident claiming lives of people on the ground who were not occupants of an airplane. The three 1952 fatal accidents at Elizabeth, N. J., reduced this ratio to 4,000,000. "Despite the unusual concentration of crashes in that locality . . . the probability for this type of accident happening was and still remains remote."

Airport accessibility: Analysis of 87 typical U.S. areas shows average city-to-airport transit time of 35 minutes, average distance 7 miles, average cost $1.

Shipping Rules French Independents

Only one major independent French carrier is free of connections with shipping firms, report reveals.

(As reported by Jean-Marie Riche, Paris Editor)

COMPAGNIE Air Algerie, one of the most active French independent airlines operating regular routes between Algeria and France, has sold 98% of its stock to the well-known French shipowner Jean Fraissinet. The sale occurred June 13.

Riche

Jean Lignel, chairman and general manager of Air Algerie, retains his position. The company operates a fleet of eight DC-3's, five SO-30 Bretagnes, with one more SO-30 on order. It is currently testing one Breguet 761 "Deux-Ponts."

One Without

This latest deal leaves only one important French independent airline, Aigle-Azur, without any liaison with the French shipping industry. The trend in France is heightened by an apparent similar trend in Great Britain, where independents are becoming linked more closely with traditional shipping interests, and the development of the air freight market with closer connections with shipping brokers.

The current picture of French independent air transport now looks as follows:

Compagnie Air Transport, operating two Languedocs and awaiting delivery of two DC-4's, active mostly between Algeria and France, is financially controlled by Compagnie Generale Transatlantique (French Line). Air France is a minor partner.

Compagnie Air Algerie, operating equipment listed above, now controlled by Compagnie de Navigation Fraissinet.

Compagnie Air Maroc, operating three DC-3's, four C-46's, three SO-30's (with three more on order), between Morocco and France, financially backed by Compagnie de Navigation Paquet.

Union Aeromaritime de Transport, operating six DC-4's, three DC-3's, with three Comet I's and three Comet II's and several DH Herons on order, between France and Central Africa and France and Viet-Nam, financially controlled by Compagnie Maritime des Chargeurs Reunis (60%). Air France is a minor partner (40%).

Transports Aeriens Intercontinentaux, operating five DC-4's, with three DC-6B's on order and probably taking over several SE-2010 Armagnacs after completion of evaluation tests, serving mainly between France and Central Africa and Madagascar, and between France and Viet-Nam. Minor shipping interests own stock but close commercial cooperation is effected with Compagnie des Messageries Maritimes, the second ranking French nationalized shipping firm.

The remaining major independent, **Aigle-Azur,** which operates five Boeing Stratoliners, twelve DC-3's and several Rapides and Proctors, has not so far allied itself with any shipping interest. There are two more independents, **Compagnie Alpes-Provence,** and **Societe Transatlantique Aerienne,** but their operations are tied to those of Air France or the big independents.

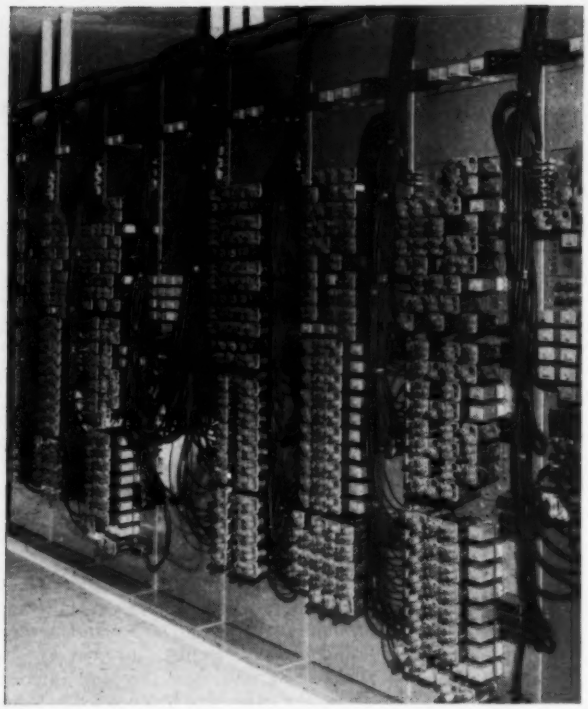
Complicating the picture, independents are sharing interests with Air France in sister companies of the French national airline such as **Air Atlas,** where both TAI and Air France have participating interests.

Only Alternative

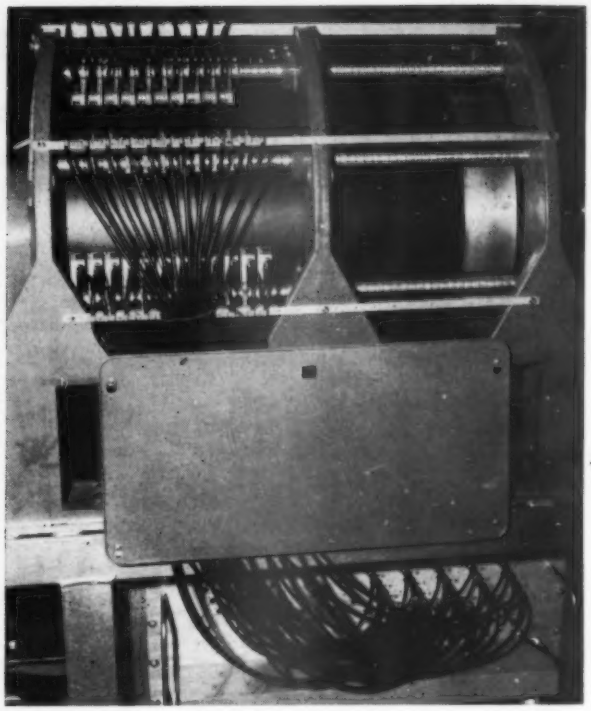
Commented Riche, from Paris: "It must be understood that close cooperation with shipping was the only alternative left to most of the independent airlines which wanted to finance further expansion of their activities and acquisition of equipment to replace surplus aircraft.

"The French government has not discouraged investment by shipping companies in the airline business, partly because it thought that this was a way to avoid cut-throat competition between aviation and shipping. French government circles generally think that a coordination based on rates calculated after operating costs will develop between Air France and the independents.

"The civil aviation law under discussion is partly designed to favor mergers between the independent airlines during a period of five or six years. After this the administration would eventually enforce compulsory mergers. Active support of the shipping industry for the independent airlines means more competition for Air France on its domestic network inside French Union territories."



THE BRAIN. The Reservisor's computor includes 1,500 vacuum tubes, mounted in subassemblies for easy maintenance.



THE MEMORY. Seats available are recorded by magnetizing surface of drum. Pick-up heads apply and remove data.

AA Push-Button System Speeds Reservations

Reservisor is clerk, computor; also storage, filing, data transmission, display, and recording device.

By Eric Bramley

AFTER eight years of development work, American Airlines has placed in operation in New York City the first completely automatic reservations system.

The Magnetronic Reservisor, designed and built for AA by the Teleregister Corp., will be studied closely by an airline committee to see if the push-button technique can be adopted on an industrywide basis.

AA several years ago started looking for an automatic method. Technical work on the development of a machine has been primarily the responsibility of Charley Ammann, AA's assistant director of reservations and ticket offices, who has been connected with the project from the start. Rodney King, then AA's director of reservations and ticket offices and now Eastern's general traffic manager, was also one of the pioneers in the field. King now heads the industry group studying automatic reservations.

A small set was installed in AA's Boston office for experimental purposes, and work continued on a larger, more complete unit. The problem was to give many agents access to a large inventory of seats on many flights, and to change the inventory record as seats were reserved or canceled. A way was also needed to learn at any time how many seats on a flight remained unreserved, with an automatic report whenever all were reserved.

10-Day Capacity

The result was the Reservisor, located in AA's LaGuardia Field offices. This magnetic and electronic device which, when development costs are included, will represent an investment of over $500,000, will handle seat reservations for a 10-day period for all flights out of New York.

With its 1,500 tubes and 1,400 relays, the Reservisor is also a high-speed computor, a storage and filing system, data transmission system, display device, and a logging or recording unit.

Initially, the device is connected with agents' handsets in the central reservations room at LaGuardia Field. Later, handsets will be in operation from downtown ticket offices.

The handset used by an agent resembles a small adding machine. It has buttons for the day of the month and for the number of seats, plus a slot for a small metal plate carrying a part of the complete schedule of flights. Less than 50 plates are needed to allow the agent to get the answer for any one of nearly 3,000 flights a day.

If a passenger asks whether there are two seats available to Washington tomorrow, the agent inserts the right "destination" plate into a slot, punches tomorrow's date and two seats, and flips an "availability" switch. Almost immediately, some of a group of eight lamps, lined up in front of the destination plate, glow, while others stay dark. Lighted lamps indicate trips on which two seats are available.

For example, the agent could say, "I can give you two seats at 10 or 11 o'clock; other flights are sold out." If the passenger wants the 10 o'clock trip, the agent releases the availability switch and the lights go out. He pushes down on the lamp in front of the 10 o'clock section of the destination plate, relighting it, and flips another switch labeled "sell." This time a green lamp, reading

"Check," lights, indicating that the Reservisor acted as desired and subtracted two seats from those available on the flight.

The agent in central reservations then records the passengers' names and tells him to pick up the tickets. If the set is in a downtown office, the passenger can, of course, be ticketed immediately.

If the passenger, instead of asking what was available, definitely requested two seats at 10 o'clock, the availability check would have been omitted and the agent would have merely flipped the "sell" switch. If the seats were available, he would get the "check" light; if unavailable, a red "reject" light. If he had punched the wrong key, or made some other mistake, an "error" light would appear.

In the case of the downtown office, the agent used the Reservisor and issued the tickets. If the passenger had made a reservation earlier, the agent would check with central reservations to make sure the seats had been recorded in his name.

Cancellation Procedure

If the passengers phones in later and asks to cancel his space, the procedure is the same as "sell" except that a "cancel" switch is thrown. The machine then puts the two seats back into the inventory. When a flight is sold out and there is a waiting list that should receive priority, the Reservisor computor rejects cancelations from all except a few agent set positions where a wait list file is maintained. When the reject signal lights, the agent refers the cancelation to one of these positions, where the appropriate number of seats are taken from the wait list.

As soon as a flight is sold out, a telegraph printer-perforator automatically informs all offices. It is also possible to find out how near a flight is to being sold out—supervisory personnel can determine this by using a master agent set which brings back the exact number of seats remaining in the inventory.

In addition to the 10-day seat inventory, the machine also has two storage sections which can be used to indicate availability on a "yes-no" basis. For example: "Can I still sell space freely on any or all of these flights for Christmas Eve?" Or, "Can I sell space freely on any or all of these flights in the 30-day period starting 10 days from now?"

The destination plate, described as the "automatic button pusher," has serrations along the edges which cause the agent set to send out a code for a specific group of eight flights. Each edge of each plate is coded differently.

AGENT'S SET with plate in slot. Buttons on left set date; on right, seats required. Lamps down center show "Check," "Reject," and "Error."

Inserted in the set, the plate sends out a code for the second row of flights from the bottom of the plate. The bottom row is covered by a shutter, and the two rows at the top are upside down, reducing the possibility of making a mistake. The bottom row can be brought into view by moving the shutter upward. This changes the code transmitted and answer lamps are properly associated with flight numbers.

By giving the plate a half turn in the same plane, two more groups of eight flights are brought into play. Four more groups appear on the back, for a total of 64 flights on each plate. The code changes with each new position of the plate and each shutter movement.

For flights making intermediate stops, the agent must have access to seat inventory on each leg. One flight space on the destination plate is assigned to each leg of such flights, and the corresponding light then applies to the leg instead of to the complete flight.

The "brain" that answers all the incoming questions is located in the central equipment room at LaGuardia. Inventory is kept on the surface of a revolving drum (1,200 rpm) in the form of tiny areas of magnetized material. Each area acts like a magnet having either a north or south pole. A specific group of these areas is assigned to each flight or leg, and the arrangement of norths and souths in this group gives the number of available seats. When the drum is rotating, pick-up heads react to the varying magnetic patterns traveling under them and read out the seat count.

Here is a simplified explanation of what happens: When the agent flipped the availability switch, the "seeker," which connects one agent at a time to the brain, was signaled that he wished service. The seeker, having in turn connected other waiting sets, switched his set through and the number of seats on each of the morning flights to Washington was read from the magnetronic drum into an electric comparator. This determined that two seats were available on only two trips and flashed signals to light appropriate lamps on the agent set. This set used the brain for about half a second and then the seeker moved on to the next call.

After the passenger selected the 10 o'clock flight, and the "sell" switch was closed, the machine checked availability (someone else might have taken the two seats while he was deciding) but this time it was done for only the one flight. The two seats were still available, so a computor subtracted them from inventory and the drum's magnetic pattern was changed to show the reduced count. The "check" signal went back to the agent. This operation took about one-quarter of the second.

The seat inventory is put into the brain by a supervisor using the master agent set, which is a combination of a regular agent set and a special one.

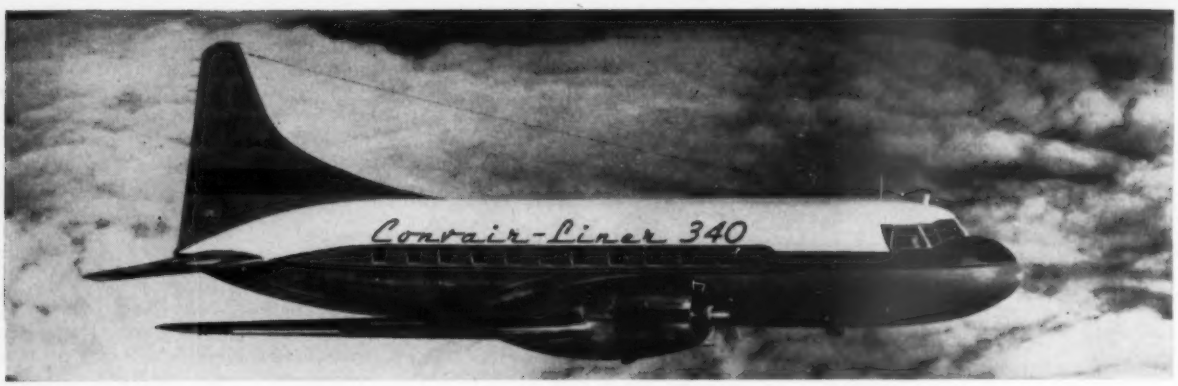
Two Systems

• **Accuracy:** The Reservisor has two complete magnetronic systems, functioning simultaneously in synchronism. Checking equipment compares performance of one against the other. If at any point in the handling of a call, the systems are not synchronized, the call is stopped, the error lamp on the agent set flashes and an alarm is sounded. A page printer records the attempted operation, and progress made up to the time of disagreement.

A maintenance man, referring to the printer, tracks down the offending unit and replaces it, all sensitive elements being jack-mounted to expedite this. If serious trouble is found in one system, the other remains in normal operation. After repair, memory of one system is made to conform with the other by an automatic operation.

• **Reliability:** Relatively insensitive components are used in preference to sensitive ones wherever possible. For example, a relay is used instead of a vacuum tube except where its operation time would slow down operations.

The system has been designed so that recognition of what *function* failed is said to lead almost infallibly to the equipment where that function is performed. Functional plug-in assemblies of from one to four vacuum tubes and of single relays allows quick substitution of spare units. Chassis wiring is standardized as much as possible and all soldered joints are visible and accessible for rapid checking. Color coding indicates the function performed by signal interconnecting wires.



IN-FLIGHT view of Convair's 340. Deliveries extend into 1954.

Convair 340 Gets Higher Weight Limit

Additional 2,000 lbs. on take-off and 600 lbs. empty bodes well for coach, cargo configurations.

By Fred S. Hunter

CONSOLIDATED Vultee is having even more than anticipated success in weights on the new 44-passenger Convair-Liner 340. In addition to obtaining 2,000 pounds more in maximum gross takeoff weight, for a total of 47,000 pounds instead of the 45,000 pounds originally announced, Convair has succeeded in saving more than 600 pounds in the empty weight of the airplane. Together, the operating gain in useful load is more than 2,600 pounds.

Convair's empty weight guarantee on 340 orders was 29,486 pounds. In construction, an empty weight of 28,850 pounds was achieved. Empty weights of delivered airplanes, of course, vary according to the equipment installed, and 28,850 pounds is the weight for a standard-type ship.

550 Pounds More

The United Air Lines planes, the first being delivered, will run approximately 550 pounds higher than a standard model due to additional UAL-furnished equipment, such as auto pilot, automatic approach, ILS, extra buffet equipment, pillow-type head rests on 9G seats, and even a new-style seat belt and buckle.

The weight advantages Convair has gained are highly encouraging to it in plans to push the sale of a high-density version of the 340 for coach-type operations. Convair can crowd up to 56 seats into the 340.

Similarly, a cargo configuration may have some appeal at the improved weights and Slick Airways already has taken a look at the airplane as an eventual replacement for its Curtis C-46 equipment. However, the high cost of CAA certification may rule out this possibility unless a bigger potential market should develop.

Test flying for certification costs, roughly, $1,000 an hour. Consolidated Vultee estimates its total bill for CAA certification of the 44-passenger Model 340, including the flying, paper work, etc., will come to approximately $1,000,000. Convair saved some money because only 50 hours of accelerated service tests were required as a result of the background of the previous Model 240.

Chased Ice

On the other hand, Convair chased ice to Canada and then to Alaska last spring seeking conditions under which it could run the CAA tests on anti-icing equipment. It found weather down to 50 below, but located ice just once. On that one occasion, however, it was unable to complete the performance tests necessary to obtain certification. Fortunately, it accumulated enough data so that it will not have to wait until next winter to finish the job, but will be able to establish rate of sink and other criteria through simulated tests which can be performed with the prototype at San Diego.

By removing the galley and gaining space now devoted to cargo by moving the forward bulkhead, Convair will be able to offer a 52-passenger configuration at 36-inch seat spacing or a 56-passenger set-up at 34-inch spacing. The latter admittedly is a little tight. By installing the seats on a Hardman track, which would be standard equipment in the high-density version, alignment with the present windows remains O. K. until the two forward windows are reached. Here, the seats become slightly out of line with the windows.

New Material

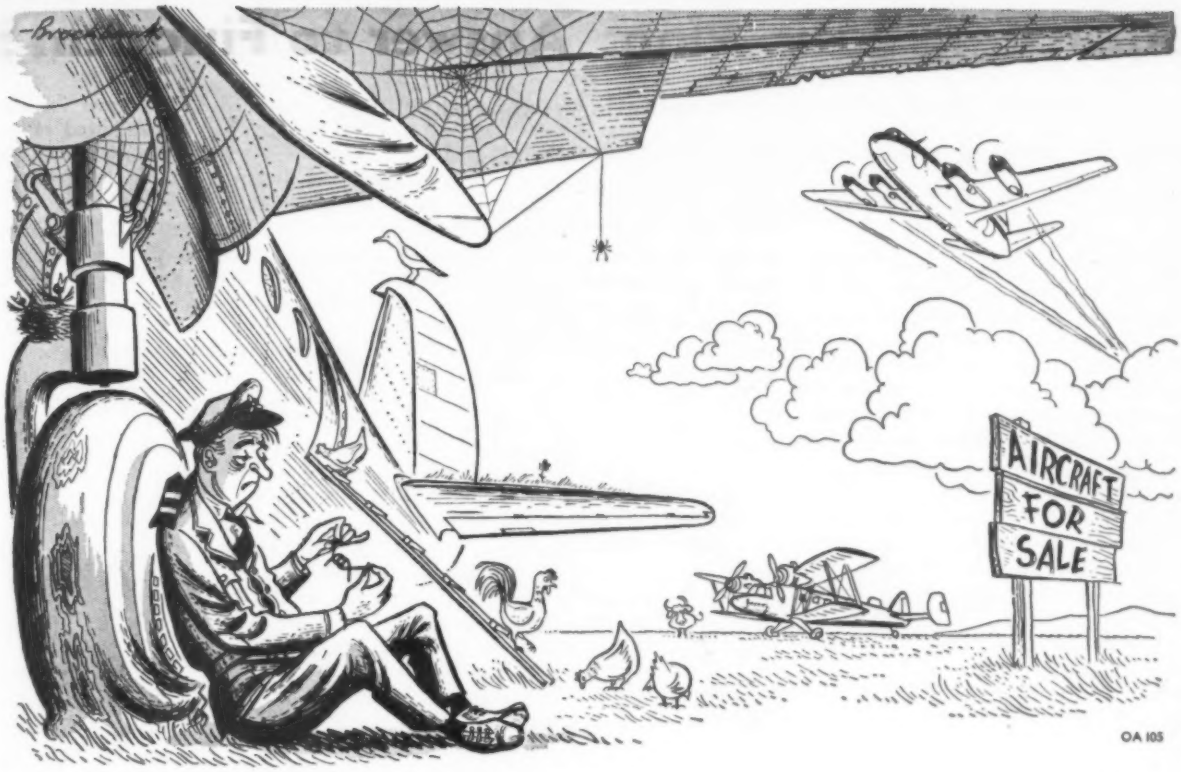
Convair will not install additional windows in the extended forward area which will be in the prop line. Here, for safety, it plans to use a newly developed nylon and fiberglass material which cannot be penetrated by rocks, metal parts, or anything else the propellers might pick up and throw against the side of the airplane.

One new escape hatch will have to be added.

Convair is moving forward with its high-density plans because of the trend toward more seats in Europe, where the San Diego manufacturer is now busily engaged in preaching the engineering doctrine of two engines as against four for runs like those within the European continent. Convair has made two sales of 340's in Europe, one of six airplanes to KLM and the other of three to the Finnish airline. (KLM also ordered eight for use by Garuda Indonesian Airways.)

Delivery Problems

Deliveries have become a problem on additional European sales. Convair's production peak, which will be reached in 1953, is eight planes a month. Like other airframe manufacturers, its production rates are geared to engine deliveries. It has orders extending into 1954. Reports have it that Convair had a sale of 20 planes to one leading European line practically on ice until it was snagged on delivery schedules.



The Airline Operator who missed his TURBOPROPORTUNITY

To-day is no time to think about turboprops, it's the time to act. The Vickers Viscount is more than "in the air"—a fleet is in production for British European Airways. The Viscount's turn of speed and greater comfort only begin the story, for its operating advantages at medium and short ranges are equally compelling.

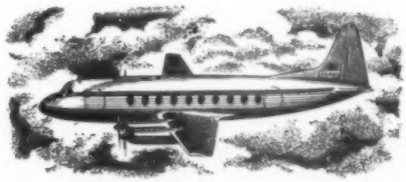
FOUR ENGINE SAFETY

The Viscount can take off on three of its four Rolls-Royce "Dart" engines and fly, or "stack" on two. These turboprops run so smoothly that serviceability on all counts—engine, airframe and accessories—is exceptional. Moreover, they run on kerosene fuel.

THE PASSENGERS' CHOICE OF AIRLINER

All the fare-paying passengers so far carried in the Viscount have remarked on its freedom from vibration and its quietness, and on the lack of fatigue at the end of their flight. Pilots say the same and also praise its all-round docility in the air.

That's not all—but enough to make it clear that to-day *no major airline dare overlook the Viscount's proven performance.*



VICKERS-ARMSTRONGS LIMITED, AIRCRAFT DIVISION, WEYBRIDGE, SURREY, ENGLAND

Operating Ratio Plan: Answer to Financing?

Tieing allowable revenues to operating costs rather than to invested capital might save the day.

By Eric Bramley

WILL the domestic airlines make enough money this year and in the future to become an attractive investment for the public?

If the industry isn't an attractive investment, where will it get the money to pay for $350 million worth of new equipment in the next few years?

Why were the two most recent airline stock issues "not too successful?"

Is the Civil Aeronautics Board using the right yardstick (rate of return on investment) in mail pay cases, in deciding how much money airlines should make?

These are some of the questions being asked in airline and financial circles. The answer to the first one seems to be that, in an industry that can change so rapidly, no one knows. The second answer is probably debt financing. Answer to the third will vary, some claiming that the industry isn't an attractive investment, others stating that a falling market was to blame.

Cause for Debate

Answer to the fourth will cause debate. But there is more talk these days that CAB should discard its practice of allowing airlines to make a certain rate of return on investment, and instead should use operating ratio—allowing sufficient revenues to maintain a certain ratio between operating expenses and operating revenues.

The problem of adequate profits is becoming of more and more concern, with the airlines taking on more big commitments for new planes and equipment. CAB has generally allowed the carriers a return of about 7% on their invested capital, and many in the industry haven't considered this adequate.

They point out that to buy equipment, an airline can use depreciation funds, cash and earnings, and then turn to financing—stock issues or loans of various descriptions. Some of the latter have been, in the past, attractive arrangements, but the experts say that an industry, as a whole, shouldn't do too much debt financing.

This, they fear, is what airlines may have to turn to more and more. Underwriters had trouble with United Air Lines' recent $22 million offering of cumulative preferred stock (4½% dividend). The $100 stock opened on the market at around 92. Result: underwriters may have to stand the difference between the price they paid the airline for the securities and the general market price. It has been reported that some of the stock is still on their shelves—they prefer to hold it awhile for a more favorable market instead of taking an immediate loss. Underwriters were also said to have had some trouble with Western Air Lines' common stock issue.

Growing Wary

Some have blamed these situations on general market conditions. Those who insist that the stocks didn't move because the airlines as a whole aren't considered a good investment point out that UAL and WAL are among the sounder carriers. What might a less attractive airline run into on a stock issue, they ask. And, having experienced trouble with two issues, underwriters may be wary about handling any more for a while.

This has led to arguments, now getting louder and stronger, that CAB should throw its rate-of-return yardstick out the window, and use operating ratio—the ratio of total expenses to revenues.

Advantages of this method, it is said, would be that it would allow the airlines to retain more earnings, would be much more flexible, and easier to administrate. A disadvantage would be that CAB would have to maintain a closer watch over operating expenses, and might encroach on management.

An investment banker recently expressed the opinion that the CAB's approach to rate making is economically unsound. Airlines are much different from railroads or public utilities—they develop a much larger amount of gross revenue for each dollar invested, he pointed out.

His arguments for use of operating ratio included the following: In 1950, major electric utilities, with $18 billion invested capital, had gross income of $5.5 billion or about 30c for each $1 of capital investment. Railroads generated 40c of gross for each $1. Airlines, on the other hand, produced $1.40 in 1950 and $1.70 in 1951, or four to five times as much as these other regulated industries.

If an industry is allowed to earn 6c on $1 of invested capital, and if each dollar generated 40c in gross income, that industry has been allowed to retain 15% of gross as profit. But, if another industry earning 6c generates $1.70, its profit is less than 4%.

It doesn't make much difference, this banker said, how large profits are if they're only a small percentage of gross revenues, because it wouldn't take much of a swing in revenues or expenses to wipe out these profits completely. The airlines have experienced swings in income (accidents, weather, etc.) and a lot of their costs are fixed and don't go down as income declines.

The 1950 taxable net income of utility companies was 23.7% of gross revenue, and they had available 28.4% of gross before interest charges. Railroads had 20% of gross income available for fixed charges, and taxable income was 14.7% of gross. Domestic airlines' operating income available for interest was 12% of gross, and taxable net income was just over 10% of revenues. In 1951, the airlines' operating income was only 15% of gross.

An operating ratio of 85 in 1951, a good airline year, isn't adequate—you're not prepared for difficulty when your margin for future error is only 15%, the investment banker argued, claiming that 15% should be the minimum in bad years instead of good.

The Record

The domestic airlines' operating ratio has looked like this:

1946—101.6	1950— 88.1		
1947—105.8	1951— 85		
1948— 99.4	1952— 94.4	(1st quarter)	
1949— 94.7			

As stated before, exactly what the airlines' operating ratio should be seems to be debatable. The situation differs for different forms of transport. Some who have studied the problem state that truckers do reasonably well with a ratio of 92 because they turn over their investment three times a year (revenues are three times investment). Railroads are in fair shape with a ratio of 75, turning over investment once every three years. Airlines, turning over once a year, must be somewhere in between.

The operating ratio idea isn't new—it's been discussed for several years. But it now seems to be receiving more and more study and consideration in airline circles, on the theory that it might make the industry more attractive for equity financing and provide CAB with a flexible means of constantly maintaining a proper relationship between revenues and expenses.

Aeroprop—

Ruggedness Starts with....

Ruggedness comes straight off a drawing board, as the engineers at Aeroproducts will tell you.

For an idea, drawn in all its details, was the beginning of a great new Aeroprop—the first propeller to successfully handle the enormous power of turbo-prop engines. Yes, from this drawing, from this design, came the ruggedness of the dual-rotation Aeroprop for planes of near-sonic speed.

But the design produced much more than ruggedness. It produced the reliability and precise control which resulted in having the Aeroprop specified for the U. S. Navy's XP5Y, R3Y, A2D, and the A2J.

This great turbine propeller is reversible—cuts landing runs safely and smoothly. Electronic governing and synchronizing circuits control turbine speeds automatically. And Aeroprop's self-contained hydraulic system makes installation and maintenance a simple matter.

Aeroproducts engineers who are among America's foremost propeller experts—are available to you for consultation on any propeller application in the subsonic, transonic, or supersonic ranges. Your inquiries will receive prompt attention.

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AIR SHIPPING prompts new packaging techniques. Developed by Gaylord and UAL, new corrugated shipping container, left, prevents damage to flowers. Hobby horse, right, is packed in crate weighing only 33 pounds.

New Technique Sells Freight for American

After "boning up" on a specific industry, its costs and problems, AA salesmen wage intensive campaigns.

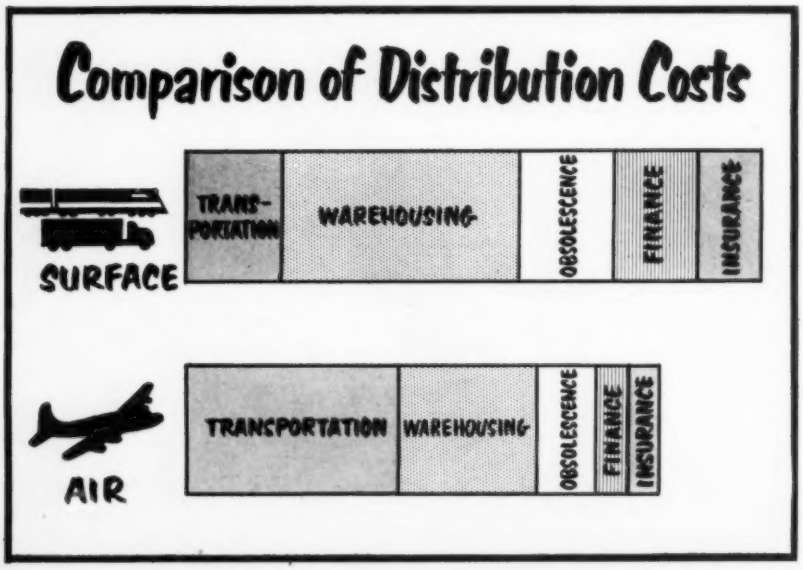
A NEW TECHNIQUE for selling air freight by concentrating on one industry at a time instead of making a broadside appeal to all types of industries is being used by American Airlines with promising results.

• Harris

Instead of trying to convince a number of manufacturers in general terms that shipping their products by air will save them money, AA salesmen who have been thoroughly "educated" regarding a specific product are talking to a manufacturer in his own language and are citing him actual figures on savings.

The thinking behind the campaigns is that if a salesman knows an industry well enough, he will be able to point out not only the obvious saving in shipping time but also more than enough savings in hidden distribution costs to overcome the higher cost of air freight shipment.

The first three-month campaign, now completed, was concentrated on the ethical drug industry. As a result, air freight shipments of drugs have increased, but even bigger results are expected in the future. Among the many letters received by AA from drug firms was one stating that the manufacturer is trying to decide whether to set up distribution points around the country or to distribute from New York via air freight. The company wanted to consult with American. Such leads can mean future business.



Second Try

The second campaign, now in progress, is aimed at manufacturers and retailers of ready-to-wear apparel. Ironically, a few weeks ago, 33 New York department stores switched transcontinental shipments of apparel from air to rail because of the April air freight rate increase.

Rather than being discouraged, AA states that this development emphasizes the need for a campaign in that industry. These stores, the company believes, were using air freight without really having been sold on its economic benefits. Says Tom Harris, AA's cargo sales manager, who has been handling the campaigns: "It points up the need for us to do a better sales job so as to point out just what these advantages are worth —smaller markdowns, faster stock turns, greater open-to-buy, and all of the many other advantages which accrue to the stores involved."

AA's drug campaigns were directed at top management—presidents, vice presidents, etc.—rather than exclusively at traffic managers. The thinking was

300 Mile Hike

WITHOUT A SINGLE BLISTER

The marines have landed! Torn roads, blasted bridges, raging rivers can't hold back the steady, abundant flow of supplies vitally needed for victory. Guns, drugs, plasma, clothes are flown over impassable terrain by Fairchild's battle-proved "Flying Boxcar."

Battle-proved to deliver dependably—with or without an airfield—rugged and versatile for any combat assignment, the Fairchild C-119 lives up to its designers' intentions, giving speed, stamina, and utility under toughest conditions. It never lets our armed forces down! That's why the C-119 is number one all-purpose transport for military airlift operations of the UN forces in Korea, in Europe and in the United States.

ENGINE AND AIRPLANE CORPORATION

FAIRCHILD *Aircraft Division*

Hagerstown, Md.

Other Divisions: Guided Missiles Division, Wyandanch, L. I., N.Y. • Engine Division, Farmingdale, N.Y. • Stratos Division, Bay Shore, L. I., N.Y.

that the former were in a much better position to see the *overall* savings resulting from air freight than the latter, who necessarily concern themselves mostly with transportation costs. The same approach is being used in the apparel campaign.

The drug campaign consisted of the following:

• **Direct sales effort:** Salesmen, after 25 hours of training, made over 2,000 sales calls.

• **Direct mail:** A series of four letters was sent to over 1,000 firms.

• **Advertising:** Insertions are being carried in Drug Trade News throughout the entire year.

• **Public relations:** Feature articles in drug publications, public speaking engagements by AA officials, news releases, etc.

Heaviest concentration was on the direct sales effort, which involved an entirely new approach for the company. AA, of course, has salesmen who are trained in the techniques of selling air freight. But they hadn't been trained to sell air freight specifically to the drug industry. The big job was to train them.

In AA's New York office, an intensive study was made of the drug industry—how it does business, how it distributes, what various drugs are, etc. Harris' office was piled high with annual reports of drug companies, prospectuses, and other material. From this study, training literature was prepared and distributed throughout the AA system.

Included was a seven-page discussion leader's guide, a 14-page description of the distribution of drugs, a six-page guide on how to sell AA's freight service to the drug industry, plus other literature.

In all, the salesmen went through a 25-hour briefing course on the industry. When they finished, they knew the difference between ethical and proprietary products, were familiar with different types of drugs, knew how they were distributed, had learned about wholesale and retail margins, outdate returns, etc. In other words, they could talk the language.

The study turned up a number of ways in which AA believed it could benefit manufacturers:

• **For smaller firms,** without branch warehouses, fast shipping could mean increased sales through development of new markets and more intensive development of existing markets.

• **Larger firms** have been borrowing capital to expand plants, build warehouses, provide for heavier inventories and additional working capital. To the extent that air freight reduces requirements for inventory investment, there is a savings from the financing aspect, AA told its salesmen, advising them to translate the amount of the interest savings into so much per hundredweight in order to offset the higher cost of air shipment.

Lower inventories, in addition to permitting savings in interest or capital costs, also mean lower insurance costs, less storage space, and a savings in inventory losses. AA pointed out that one large company provided reserves of $640,000 for inventory losses, or 2.1% of total inventory, a figure that air freight could reduce.

If a manufacturer estimates his warehousing cost at 4% of sales revenue, and air freight can reduce that to 2% (figuring on a value of $8 per pound for the drugs), he will save $16 per 100 pounds, computed at 2% of $800. Today's differential between air and surface freight, even on a transcontinental haul, is less than $15 a hundredweight, AA said.

The company also discovered that many drug products are dated and not useable after a specified date. Such products are returned to the manufacturer and charged directly to income. This obsolescence is costing about 2% of sales. Knocking ½% off this results in a saving of $4 per 100 pounds.

Officials of AA appeared before the Drug Traffic Conference in Chicago armed with charts and figures showing that:

A New York manufacturer could, by using air freight, cut time required for shipments to the West Coast from 12 days to two. This would provide a saving on stock in transit of more than 80%, and a 40% to 60% saving in warehousing cost. San Francisco was as close by air to a New York manufacturer as Oil City, Pa., was by surface, (see map) and Chicago was as close as Utica, N. Y.

• **Case history** of a small midwest manufacturer showed that he could eliminate his Los Angeles branch distribution warehouses and save money by air shipment. The annual figures were broken down as follows:

Rent	$ 720.00
Personnel for branch operation	6,646.96
Inventory and personal property tax	372.39
Miscellaneous expenses	77.68
Cost of surface shipping	1,114.04
Total cost of present method	8,961.07
Proposed air freight charges	5,325.76
Savings if air freight is used	3,635.31

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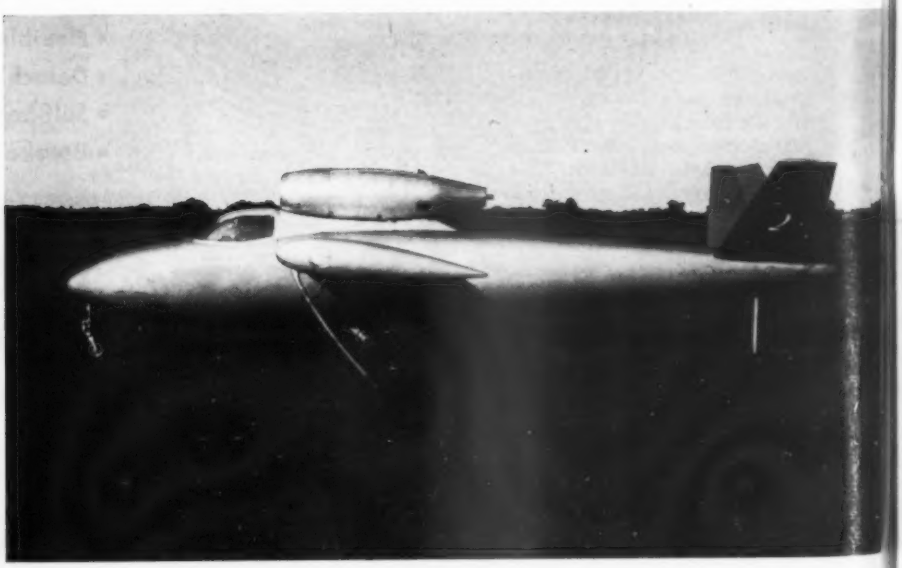
Fairchild flight test of C-119H shows exterior fuel pods and, redesigned wing. Other new features include rough-field landing gear, lower paradrop and touchdown speeds.

News In Flight

French helicopter, the SE 3120, has a cruising speed of 75 mph. Powered by a 200 hp Salmson engine, it is designed for military and agricultural use. Manufacturer is Societe Nationale de Constructions Aeronautiques du Sud-est (SNCASE).



New racer, the French Fouga "Midjet," may help revive interest in air races. Power plant is a Turbomeca "Palas" turbojet.

Carries a fourteen-ton payload
2850 miles nonstop
at 300 mph

—the Douglas Liftmaster

Now in quantity production for the military and the airlines, the Douglas DC-6A Liftmaster delivers efficiency where it matters most, *lower costs per ton mile!*

The Liftmaster, known to the Navy as R6D, and to the Air Force as C-118-A, has *three* level floored cargo compartments, totaling a capacious 5000 cubic feet. Access is through front and rear doors. Loading, by fork truck, conveyor, or variable bed truck, is quick and easy. With the same aerodynamic lines as its passenger counterpart, the DC-6B, the Liftmaster provides the last word in the swift and *economical* airlift of cargo.

Performance of the Liftmaster is another proof of Douglas leadership in aviation. Designing airplanes for quantity production to *fly farther and faster with a bigger payload* is a basic Douglas rule.

Depend on *DOUGLAS* **First in Aviation**

Sinclair Aircraft Oils PROVED in 18-Year Sky Marathon . . .

A luxurious American Airlines DC-6 over New York

In the last eighteen years, American Airlines has flown more than 14,700,000,000 passenger miles. Over *every* mile, this great airline has lubricated its powerful engines *exclusively* with Sinclair Aircraft Oils.

They have proved *outstanding*—year after year after year!

No wonder, then, that 40 percent of *all* aircraft oils used by major airlines in the United States is supplied by Sinclair.

Shouldn't *you* consider changing to Sinclair—now?

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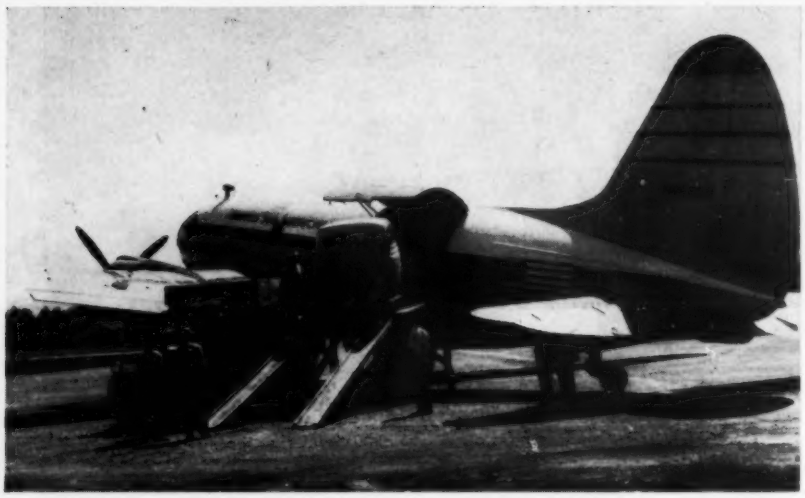

TRUCK is unloaded from an Aerovias C-46 after flight from a U. S. gateway.

ICC Order Aids Overseas Air Freight

Railroads must remove rate advantage to steamships at Tampa gateway August 28; precedent may be set.

By William V. Henzey

AN INTERSTATE Commerce Commission order directing railroads to remove an "unjustly discriminatory" rate advantage given to ocean surface carriers is viewed by international airlines serving this country as a stimulant to overseas air freight volume.

The ICC decision, which the rails must comply with by August 28, directs those carriers to charge equal rates on commodities exported or imported through the Tampa, Florida, gateway whether the ocean part of the trip has been made by surface or air carriers. In most cases this will entail "substantial" reductions in rail rates where commodities are received from or given to airlines at international gateways.

Other U. S. Gateways

Industry officials feel the principle of the decision will be applicable to other U. S. gateways in addition to Tampa.

ICC assistance was sought by Aerovias Sud Americana, Inc., a U. S. nonscheduled airline which operates all-cargo services between Florida and Latin America and which, at press time, was awaiting final CAB decision and Presidential action on an application for a certificate for scheduled cargo operations to Latin America.

Aerovias does a big business in transporting new automobiles from gateways in this country to Latin American points. But it found that railroads which transported the cars from Toledo, Ohio, to Tampa for shipment via Aerovias or other airlines were charging higher rates than for cars shipped via ocean vessel.

A Studebaker Champion, for example, was moving between one pair of points via rail-ocean service at a rate of $205.33 while the combination rail-air charge was $249.88. On other types of cars, and on other commodities, the differential varied, with the ocean-going carriers gaining an advantage on the strength of the lower rail rates.

Petition Filed

Aerovias filed a petition with the ICC charging the rail practice was "unduly discriminatory, prejudicial, and disadvantageous to complainants and others handling overseas air traffic through Tampa, and unduly preferential of and advantageous to shippers of import and export traffic in connection with ocean surface vessels through the Gulf and South Atlantic ports."

Later, Pan American World Airways, Servicios Aereos, S. A. (a Cuban carrier), and numerous civic groups intervened in support of the complaint. Opposition stemmed from various railroads, including Atlantic Coast Line Railroad, and various port groups.

After a full investigation, the ICC, by a split vote, found the rail practice was "not unreasonable" but was "unjustly discriminatory and unduly prejudicial" and such "unlawfulness" should be removed. This means that the $45 differential on shipments of Studebaker Champions, cited above, will be reduced to approximately a $7 differential.

More marked will be the effect on certain shipments of station wagons, where one vehicle will move via rail-air for approximately $14 less than the combination rail-ocean rate, in sharp contrast to a current rail-ocean advantage of about $24.

In addition, many commodities considered "marginal" today may be swung to air service by the rate change. These include such items as tires, eggs, bicycles, juke boxes, and shoes.

Such a possibility was foreseen with little enthusiasm by dissenting Commissioner Johnson of ICC, who said, "This opens an entirely new field, export rates applicable by air beyond, and invites export rates from far inland ports of entry such as St. Louis, Chicago and others. If air, the most expensive class of transportation, is able to undersell water transportation, the cheapest form of transportation, it may easily undersell rail, a more expensive form of transportation than water, and successfully compete with both from far inland ports of entry.

Create Confusion

"Export-import rates originate largely from commercial conditions abroad, with consequent demand for preservation of American port equalization, and have little connection otherwise with the domestic rates to the ports. Action in the present case will certainly be extended to other ports and tend to create confusion." Other commissioners concurred in this view, but not enough to swing the final decision.

Victor V. Carmichael, Jr., 31-year-old president of Aerovias, hailed the ICC verdict as a boon to international air freight not only for his own line and the area it serves but for other air carriers and for shippers and the public generally.

Similarly, Pan American's general sales manager John E. Muhlfeld viewed the decision as "an important stimulus to the development of international air cargo." It should be, for it means the international airlines have gained a substantial rate advantage without reducing their prices one cent.

MATS to Use C-118C's

New Douglas C-118C's, military versions of DC-6A Liftmaster, will replace Douglas C-54 equipment in two Air Transport Squadrons of the Military Air Transport Service's Atlantic Division. The 1253rd ATS and the 1257th ATS will be converted during the third quarter and the last quarter of 1952, respectively.

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Consult your local American Airlines ticket office or travel agent–and you're on your way!

AMERICAN AIRLINES INC.

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Music: 'Nobody Seemed to Want It.'

IS THE USE of music in the passenger cabins of transport planes desirable and feasible? Is a system available that will furnish music both in the air and while the plane is on the ramp? What about costs, equipment, etc.?

To get the answers to these questions, AMERICAN AVIATION queried the passenger service directors of several airlines. Their answers varied greatly.

Only one airline, National, reported using music at present, mostly on the ground, sometimes in the air.

Some favor its use, or are open-minded, but believe more work must be done on equipment.

Others found that passengers either don't want music or don't care whether they have it or not.

One airline, Braniff, tried a test installation, found it satisfactory, but abandoned the project because the public wasn't interested. Two replies from Braniff are printed below, one on passenger reaction, the other describing the installation.

John W. Streeter, director of catering and cabin service, National Airlines.

We have been using the music installation on our DC-6's for over two years now, and we are still experimenting with the type of installation, voltage regulators, and the speaker installation. As you probably may judge from this statement, it has not been satisfactory from the standpoint of over-all operation. It has worked out fairly well for ground operation in the aircraft at the ramp, using a ground power unit.

Streeter

We use a magnetic tape Crestwood player, so that we utilize the public address system amplifier. The set is very simple to operate. The stewardess places the spool of music on the player, turns on the amplifier, adjusts the volume, and the tape plays for a period of 30 minutes . . . and by reversing the spool, it will play an additional 30 minutes on the other side of the tape (special tapes are cut for NAL by Muzak).

These sets cost $100 each, and installation costs are negligible. The maintenance costs have averaged approximately $5 per month per set. The passenger reaction and acceptance have been good.

We have installed additional special speakers on one particular ship on the side panels, and find that through the use of this type of specific installation we get a much improved performance in the air. As this is experimental, we have not yet decided to what extent additional speakers will be installed so that we may provide music at all times while the aircraft is in flight. In short, we consider the ground part of our music presentation very successful.

I definitely feel that music in the air has a future. Further development of this should result in our being able to supply satisfactory music interludes either on the ground or during certain periods in the air where music is generally considered desirable, such as during cocktail hour or while serving dinner.

•

Langhorne Reid, Jr., traffic administrator, Braniff International Airways.

The unit performed beautifully, and it was no trouble whatsoever to operate it. However, the fact of the matter was that the passengers were almost 100% indifferent, with a few seeming to appreciate it, but just as many indicated some degree of irritation.

We therefore came up with the astounding conclusion that a very fine installation could be made and it was too bad that nobody seemed to want it. We are very definitely convinced that the public simply isn't interested sufficiently for the very high installation cost to be justified.

•

O. C. Enge, general manager, passenger service, United Air Lines.

Our communications people tell us that music by radio in aircraft would present a fading problem . . . Secondly, we have not found a record type of music transmitter that could be satisfactorily used in airplanes . . .

Enge

The matter of selection of music poses a problem, in that people's taste in music varies greatly from popular to classical and all ranges in between. Last, but not least, within the confines of an airplane, people who are allergic to all types of music would have no way of escaping it.

We hold an open mind on the subject of music in our aircraft, and if satisfactory solutions could be found to some of the above problems, we certainly would consider its use, at least on some flights or for parts of flights.

H. R. Dreggors, director of communications, Braniff Airways.

One test installation was made in a DC-6 using the best equipment available. The results were quite gratifying as far as the technical features of the installation were concerned. The equipment was almost completely automatic, and the cabin attendant had only one knob to turn . . . The tape playback mechanism was set up to furnish continuous background music indefinitely, with a repeat cycle each four hours . . .

Dreggors

We found that a satisfactory system would cost in the neighborhood of $1,500 to $2,000 per airplane, and the weight would be somewhat over 100 pounds. This, of course, didn't contemplate the use of cheap home recorders and ordinary replacement-type radio speakers . . .

Our tests were based on a playback mechanism manufactured by one of the best recognized recorder manufacturers in the broadcast and professional recording field; also, the loud speakers . . . were of the highest quality and the amplifier was manufactured by one of the leading aviation radio manufacturers.

As for the type of music, we found that a very thorough study must be made of recorded material and use only those selections having a rather even recorded level or volume and which are also more or less familiar to the average person wherever possible.

Excessive high or bass notes are not desirable, and it was found that vocals are inclined to detract one's attention from what he is doing or thinking about, and therefore are undesirable. It appears that light concert pop, particularly with string orchestrations, are best suited . . . even though we tried some light organ melodies, which were fair.

We found one particular firm which was very interested in furnishing us a library of broadcast transcriptions with mechanical rights for re-recording on tape, as well as performance rights, at a reasonable figure. Of course, to put this type of music on tape would require considerable effort and study by someone familiar with this type of work, and also a considerable amount of costly recording equipment, but the results should be quite gratifying.

•

T. W. Brooks, director of passenger service, American Airlines.

We have many times considered the adoption of this service and have always rejected it in final analysis. Most of the systems work very satisfactorily in the process of boarding and add something to the atmosphere of the departure of the flight.

However, after take-off, the problem of raising the volume level above the normal engine noise and still keeping good tonal quality is a difficult one.

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HYDRAULIC ACTUATORS

BREEZE CORPORATIONS, INC., 41 S. Sixth St., Newark, N. J.

We recently ran a small sample survey on this subject among our passengers and received a rather mixed reaction. The airplane is one of the few places left in our world where a person can do absolutely nothing but think and rest. There seems to be a high percentage of the traveling public that wishes to leave this undisturbed.

For the above reasons, we have shelved the idea of music in flight.

•

W. L. Griffith, superintendent of passenger service, Eastern Air Lines.

It seems to be generally agreed at the present time that cabin music in flight and on the ramp does not interest the passengers sufficiently to warrant the expense of its installation.

Griffith

This is particularly true of music in flight, since the high cabin noise level has a tendency to obscure the lighter portions of the average musical selection. On the ramp, the trend toward high-density seating and shortened station stops lessens the desirability for cabin music due to the confusion of loading and the short time available for the passengers to enjoy the music.

The foregoing reasons constitute the operational objections to cabin music. I also understand that there are some technical problems that have not yet been solved. Among these is the fact that a reliable tape recorder, suitable for airborne use, is not yet available. It is the feeling of our communications people that a unit meeting this specification will not be on the market within the next two years.

Despite the above, I believe that the technical difficulties will be eliminated to the extent that cabin music in flight will be available on a practical basis within the next five years.

•

Clifford Mutchler, director of passenger and cargo service, TWA.

We have felt for some time that music aloft is a nice service feature, but we also believe that it must be used with restraint and it must be used only if the aircraft are equipped with a thoroughly first-class public address system.

Mutchler

We have done considerable research in connection with tape or wire recorder installations, and, while we do not have any present plans for a fleet installation, we have not by any means entirely abandoned the idea of providing music aloft. We have had a little difficulty with our public address systems . . . Certain modifications are being made and when the systems reach the standard we desire, we will probably give further consideration to music.

There are certain pros and cons . . . Not all types of music would be acceptable and it is probably true that music in any form would be objectionable to a few people. Certainly it would not be practical to have music blaring in passengers' ears continually; the music broadcasts would have to be intermittent, say 15 or 20 minutes in each hour and during meal periods. Also, on night flights they would have to be discontinued fairly early in the evening.

We discontinued the radio installation on our DC-3's for several reasons. The most important of these were (1) frequent and high-cost maintenance on the units, and (2) the difficulty in maintaining satisfactory reception as the aircraft passed rapidly from zone to zone . . . Of course these problems are not insurmountable and . . . I am reasonably sure that a satisfactory installation could be accomplished today.

NATIONAL AIRLINES stewardess adjusts the magnetic tape Crestwood player used on DC-6's. Public address system amplifier is used to transmit music to passengers.

•

Althea G. O'Hanlon, director of passenger service, Capital Airlines.

When we began our Constellation and Super DC-3 service, we had radios installed so that we could have music during the time the planes were on the ground . . . However, there were many difficulties involved.

We found that the commercials presented a problem and it was also difficult to find appropriate programs which would coincide with our departures. This, coupled with the fact that we had a number of complaints from passengers who objected to the noise, led to a decision of discontinuing the music.

Later on we tried a record machine, thinking that at least we would have the opportunity to be more selective in choosing the programs. However, this too was voted down because of passenger reaction.

Although we believe that some of the passengers did enjoy the music, particularly under the second arrangement, we never received any comments from them, and we did receive a number of comments from those who did not share this enthusiasm.

At the present time we have no plans for continuing this program.

•

John L. Sutton, superintendent of passenger service, Delta Air Lines.

Personally, I am very much in favor of the use of Muzak type music both on the ground and at intervals in the air . . . My preference is to at least have music available in the aft section of the DC-6's that can be played in flight during meal service or other appropriate times.

We have had the advantage of being able to use National's music system on the interchange service, and I personally saw how much passengers enjoyed it.


S
W
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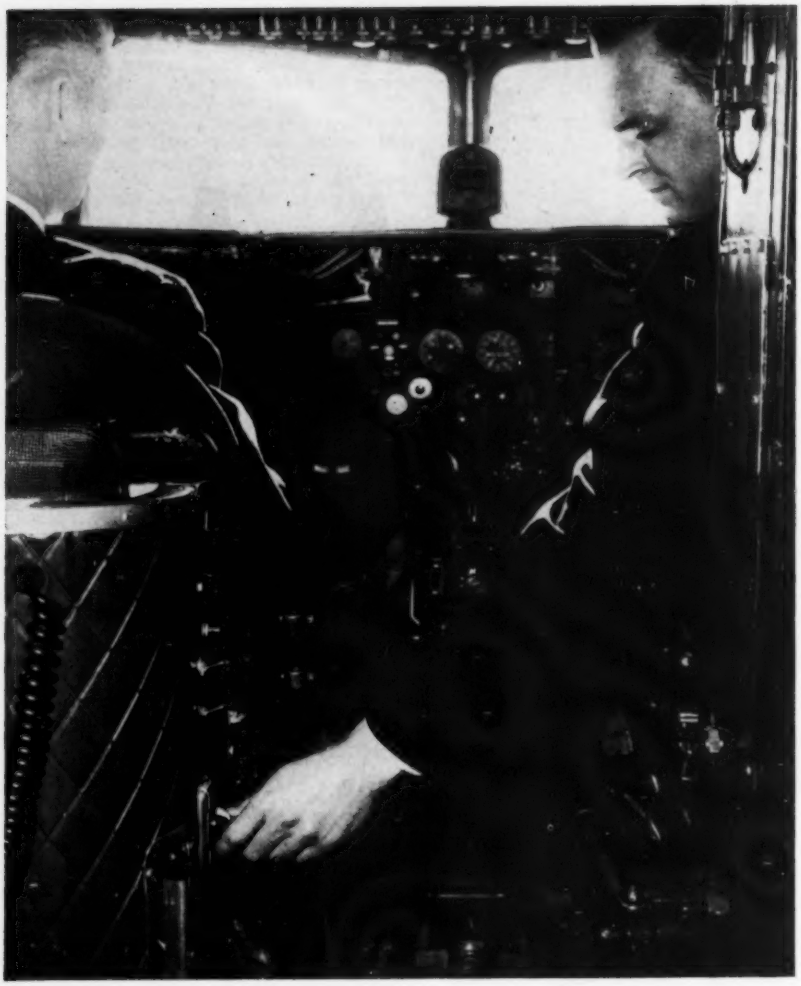
UNITED
AIR LINES



COCKPIT HEAT CONTROL and switches are located in panel, above.

Complete Control for DC-3 Heating

Vapor Heating Corp. revisions on executive plane's installation make operation fully automatic.

AN EFFECTIVE means of converting the Douglas DC-3 heating system to fully automatic operation has been designed by the Vapor Heating Corp. of Chicago, Ill., and installed in the executive aircraft of the Texas-Illinois Natural Gas Pipeline System by Remmert-Werner of St. Louis.

Minimum of Effort

One of the perennial problems of DC-3 operators has been that of providing adequate heat to cockpit and passengers with a minimum of pilot effort. Freezing of the water supply and high maintenance costs plagued the DC-3's original steam-heating system, while a multiplicity of controls and circulation problems left much to be desired in the hot-air system of its military successor.

The "Tex Illiner" was converted to a plush executive aircraft for the INGPS by Remmert-Werner but with few heating system changes. The company, with main offices in Chicago, uses the DC-3 for transportation of executives along the route of its 1,417-mile pipe line which originates southwest of Corpus Christi and extends to Chicago. It is also used by the Natural Gas Pipeline Co. of America in similar activities.

When company pilots and officials became dissatisfied with the operation of the original hot-air heating system, Vapor Heating Corp. engineers were called in to design an improved system. Using basically the same ducting, a system providing manual or fully-automatic operation was designed and installed.

The orginal system used heat exchangers, around the exhaust stacks of each engine, as a source of heat. Air flowing over the hot stacks was routed through separate ducts and mixing chambers (one for each engine) to the cockpit and cabin. Cold air ducts and manually controlled mixing valves, operated from a position behind the co-pilot's seat, mixed cold and hot air in suitable proportions to keep temperatures stabilized.

Mercury Thermostat

This meant that system controls remained fixed until the degree of change was sufficient to alert the crew and prompt changes in the manual control settings. Temperatures were seldom in tune with current needs.

Using its standard temperature-sensing equipment, Vapor Heating Corp. designed a system which uses electric actuators to adjust the mixing valves in response to precision thermostatic sensing units located in strategic spots in the heating ducts, cabin, and cockpit. The cabin and cockpit systems are isolated, and rheostat-type controls in each compartment make it possible for the crew or passengers in the ship to adjust temperature levels. Once set, the thermostatic control system adjusts the mixing chamber dampers to maintain the desired temperature.

Heart of the revised system is the Vapor Heating Corp.'s mercury contact thermostat. One of these is mounted in the cabin, mid-way along the cabin length under one of the passenger seats (see photo). Another is mounted on the bulkhead behind the co-pilot's seat. These units sense the air movements in their immediate area and signal the heat requirements accordingly.

Two additional thermostats, one

CABIN THERMOSTAT is located under passenger seat in the cabin.

LOCKHEED-LODESTAR

Every takeoff a payoff...

Executives who fly their own or company planes know that it pays off in getting much *more* done in much *less* time. And as men of sound judgment, many of them insist on dependable *Esso Aviation Products*—chosen by many leading airlines, aircraft and engine builders.

Esso Wings welcome you at more than 600 modern Esso Dealer Airports, where you may always expect high standards of service and product quality.

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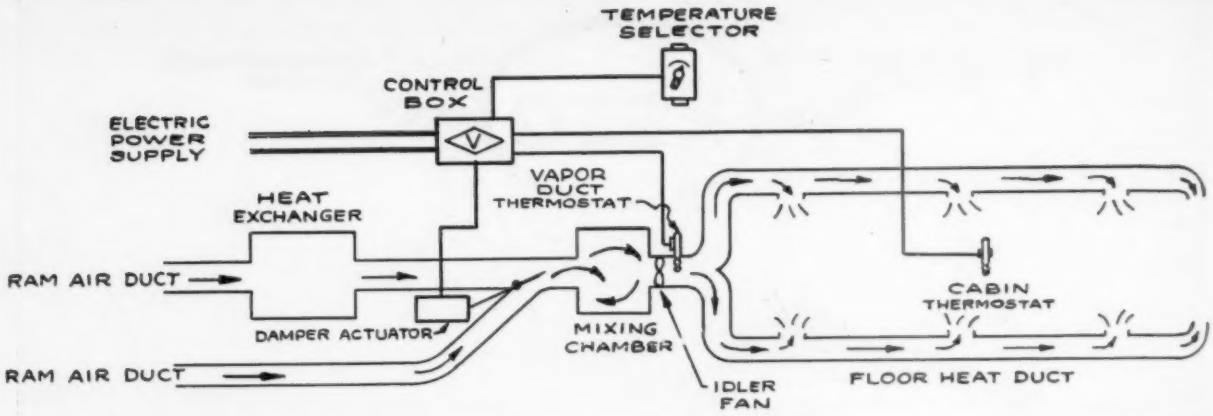


CABIN HEATING SYSTEM ducting, including actuators and idler fan, are illustrated in this schematic drawing of ducts and major system units.

for the cabin and one for the cockpit, are buried in the distribution ducts.

The Vapor thermostats are primarily mercury-type thermometers equipped with dual bulbs and using the mercury column as a precision switching mechanism. These units, tested to 100 G's and in use in new fighter aircraft systems, are accurate to within 3/10 of one degree. The lower mercury bulb is open to the ambient air in the area of its mounting.

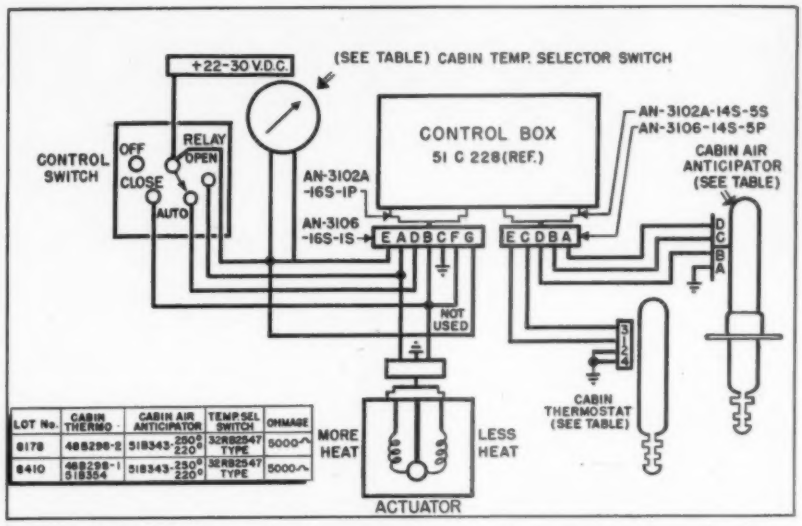
Two Switches

Cold air, entering the distribution ducts, cools the mercury, causing it to put the actuator circuit in the "more heat" configuration through an amplifier. This closes the cold-air ducts and opens the hot-air ducts. Simultaneously, a follow-up signal to the resistance-wound upper mercury bulb of the duct thermostat is generated. This action anticipates increased air temperatures in the duct and signals the actuator system to cut down the heat input before the cabin becomes uncomfortably hot.

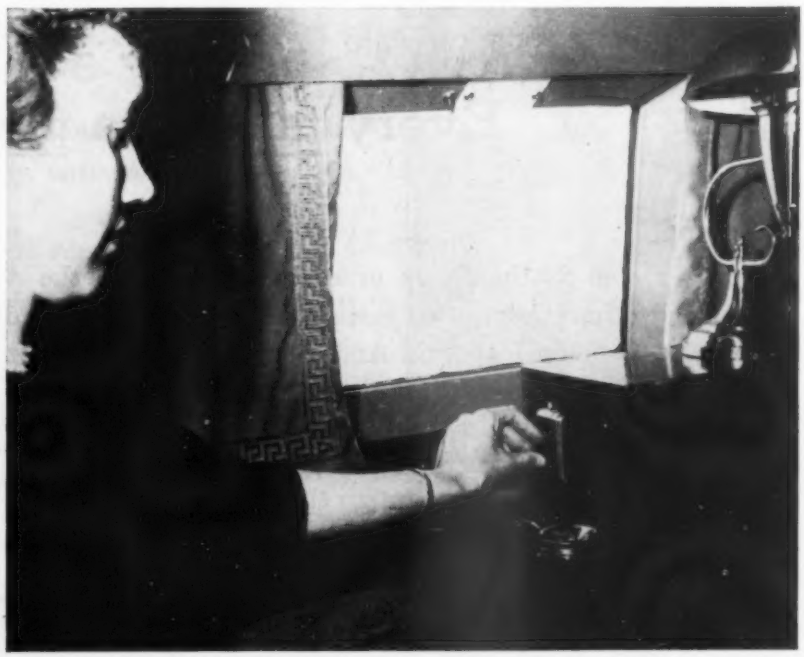
While the duct thermostats actuate the mixing dampers, the cabin and cockpit thermostats act on the duct thermostat circuits to change their settings as required to reflect actual cabin—or, in the cockpit heating system, the cockpit—temperature. The manual adjustments in the cabin and cockpit have the same effect, that is, they vary the current in the resistance coil around the upper mercury bulb and thus determine operation of the actuator.

Selection of automatic or manual heat control is by means of two single-pole, double-throw switches mounted in a recessed panel in the map-and-flight-manual cabinet alongside the pilot's seat.

Vapor Heating Corp. is located at 4501 West 16th St., Chicago 23, Ill.



ELECTRIC CIRCUITAL of cabin system shown in Vapor Heating Corp. drawing.



CABIN PASSENGERS can set temperatures to suit themselves.

INSTRUMENTS ARE EXPOSED TO ULTRA-VIOLET RAYS TO DETERMINE THE EFFECT OF SUNLIGHT ON LEGIBILITY OF DIALS

Flight Tested Without Leaving the Ground

G-E Aircraft Instruments Subjected To Rigid Climatic Tests at Factory

A torture chamber with an engineer in charge is the new General Electric climatic test laboratory. To assure dependability, all G-E aircraft instruments are subjected to a series of tests which simulate and even exceed the conditions encountered in actual operation.

Climatic and physical tests vary from accelerated vibration tests with linear vibrations up to and exceeding 3000 cycles per second, to ultra-violet ray tests determining the effect of intense sunlight on the instruments.

Extreme vibration tests are made to determine stickiness and accuracy changes. Instruments are vibrated at conditions up to a maximum point of 2500 cycles per second and 20G's linear acceleration.

Shock tests are performed with the instruments mounted in three different positions, with at least ten 30G shock tests in each position. Sand, dust, and rain tests are performed in specially designed rooms. Instruments are put into a shower equivalent to 4 inches of rainfall per hour, and are exposed to miniature sand and dust storms having air velocities up to 2300 feet per minute at 165 F.

The objective is always to assure a quality of product that will more than meet conditions encountered in service. For information about available instruments, contact your G-E aviation specialist or write Section 210-34, General Electric Company, Schenectady 5, N. Y.

You can put your confidence in—

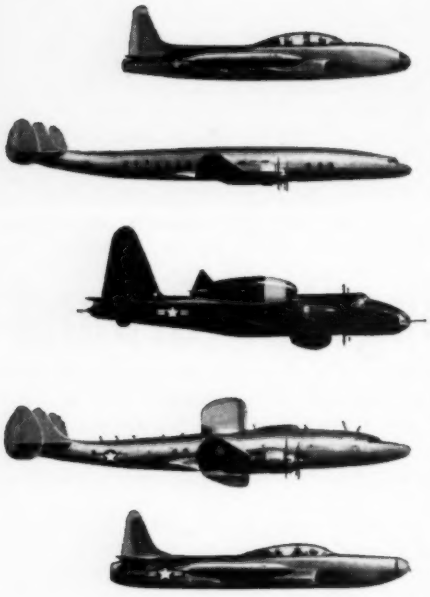
GENERAL ELECTRIC

HUMIDITY ROOMS are used for exacting checks of corrosion and deterioration.

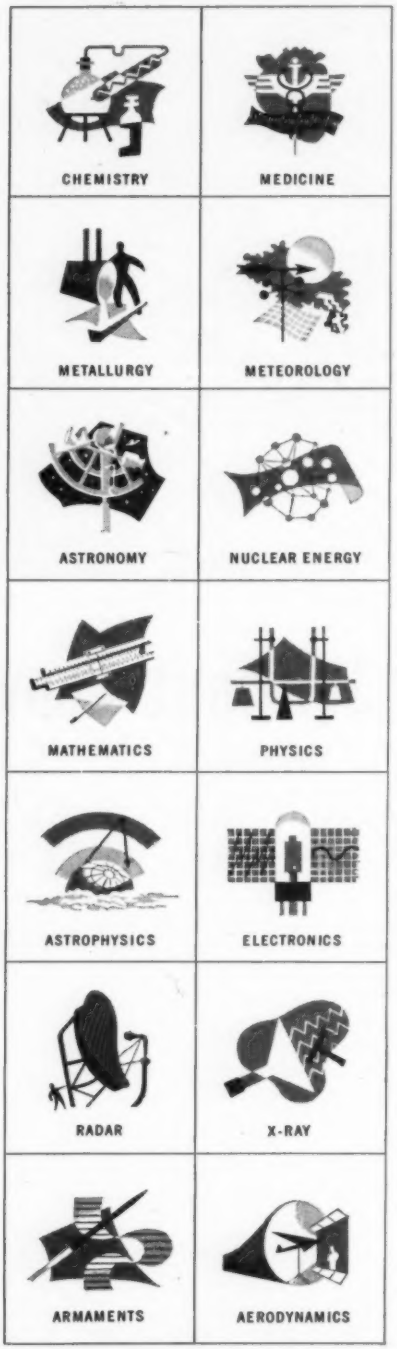
30G SHOCK TESTS are made with the instrument placed in 3 different positions.

SALT SPRAY TESTS are performed at 85 F with instrument immersed in 10% salt-water solution.

Leadership demands constant achievement



T-33 JET TRAINER
SUPER CONSTELLATION
P2V NEPTUNE
MILITARY CONSTELLATION
F-94 STARFIRE



Nearly every science known to man ...

insures dependability and advanced design in Lockheed planes

AIRCRAFT DESIGNING and construction are *precise* sciences. That's why Lockheed Engineering has more departments than a big university.

Lockheed's several thousand scientist-engineers work on more than 150 major projects—to build the utmost *precision* and *dependability* into Lockheed aircraft.

LOCKHEED'S ENGINEERS must have all the right answers for each vital part of every airplane. Will it stand heat, cold, tropical damp, corrosion, sand, dust, stress, strain, torque—and exactly how much? Can it be made lighter, stronger, smaller, simpler, more economical, better in any way? If the right metal doesn't exist, Lockheed scientists develop one. If a new machine is needed, Lockheed engineers invent one. There's always a new problem, because Lockheed is always looking for a better method—always building better aircraft.

TRAINING FOR SCIENTIST-ENGINEERS
For information about Lockheed's on-job training, write: Engineering Section, Employment Dept., Lockheed, Burbank, Calif.

Lockheed

Aircraft Corporation

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Look to Lockheed for Leadership

Lockheed

DEVELOPS ADVANCED ELECTRONICS CENTER

Secret and advanced designs of virtually every electronics manufacturer in the U.S. are constantly studied, correlated and put to work at Lockheed Aircraft Corporation's electronics center in Burbank, Calif.

This center is one of the nation's largest clearinghouses for electronics intelligence. It was developed by Lockheed to provide the latest in this science of automatic controls for such Lockheed planes as the F-94, first U. S. All-Weather Interceptor; the WV-1 and WV-2, Navy Constellation radar sentinels; and deadly new models of the P2V Navy patrol bomber for anti-submarine warfare.

Such laboratories as Westinghouse, Hughes, General Electric, RCA, Raytheon, Western Electric, Hoffman and many others bring advanced electronic developments to Lockheed for practical application.

UNIQUE APPROACH

Lockheed's approach to electronics differs noticeably from many other aircraft manufacturers. At Lockheed the emphasis is on the application, not the manufacture, of electronics. That's because Lockheed begins the design of an advanced plane with the specific mission of the plane in mind. Knowing what the plane MUST do, Lockheed wants to be free to analyze *all* products of *all* manufacturers in order to obtain the most advanced electronic devices needed to accomplish this mission.

Lockheed does more than apply *existing* electronics. Often, no device is available to perform a specific job. At such a time, Lockheed scientists provide the all-important idea, frequently supplying the basic design, for a new product. Then they turn it over to an electronics company for manufacture.

TYPICAL EXAMPLE

America's first All-Weather Interceptor, the Lockheed F-94, is a current result of Lockheed's policy. Not being a manufacturer of electronics, noncompetitive Lockheed can work closely with companies who are, as well as the U.S. air services. As a result the F-94 was *electronically at least two years ahead* of competitive aircraft.

This leadership is a principal reason why Lockheed is attracting so many top experts in electronics.

Extra Section

By William D. Perreault

CHARACTERISTICS of the pilot which make him a worthy competitor for the "black boxes" now being used to help him in his approach and landing were described by **Wing Commander H. P. Ruffell Smith** of the RAF, to the IATA Technical Conference in Copenhagen, as follows: "Man is not as good as a black box for doing certain specific things. However, he is more flexible and reliable. He is easily maintained and can be manufactured with relatively unskilled labour."

•

Aircraft manufacturers ranked ninth and air transport 31st in the 40 basic industry classifications used to classify safety, as a function of injury frequency, during 1951, according to the National Safety Council. Injury frequency rate of the aircraft manufacturers was up 31% over 1950 for a rate of 5.45 injuries per million man-hours, while that of the air transport industry was 15.72, up 8% over 1950. Injury severity rate for the airlines (time charges in days per 1,000 man-hours) was 0.58 and for manufacturers a rate of 0.63. The large number of new workers in both industries may have contributed to the increase in accidents.

•

When Hawker-Siddeley completed the 11,020th and final Avro Anson aircraft last month, it announced that "Ansons have been made in greater numbers than any other aircraft in history," an honest misstatement which was reproduced widely. North American Aviation notes that it produced and delivered 15,525 T-6 trainers and 15,488 F-51 Mustangs. North American did not offer this as a record, simply as a statement of their production. That's a lot of airplanes. Of the T-6's, 12,967 were produced in the Dallas plant between April, 1941, and August 1945.

•

For the automotive industry we have a new figure on the number of automobiles junked in one year, also an interesting record. In 1950 3,700,000 autos were junked, double the prewar rate. Other facts in a new booklet, titled "The Work Cars Do," published by the Automobile Manufacturers Association, include: 17 million cars operating in the U. S. today are nine years old or older and have an average speedometer reading of 73,020 miles; 59 million adults use motor cars daily in this country; production and distribution of motor cars accounts for over one million jobs.

•

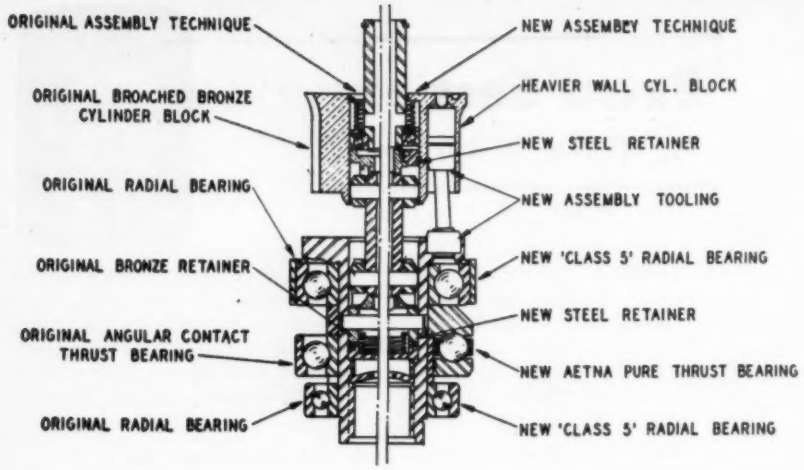
From Indonesia comes word that **Billy Ray,** well known in airline maintenance and engineering circles, who has been with Garuda Airlines since September, 1951, as a representative of J. G. White Corp., will stay on another year at the request of the government airline. Garuda is jointly owned by KLM and the Indonesian government. It operates eight Convair 240's, seven PBY's, and 21 Douglas DC-3's. Another eight Convair 340's and 14 de Havilland Herons are on order. Bill has helped organize Garuda's maintenance and has pushed aircraft utilization skyward.

•

Northwest Airlines reports that one of its Boeing Stratocruisers, riding a jet stream into Seattle, was flying so fast that the Pacific Northwest radar operators ordered Air Force jet fighters up to investigate the fast moving target. Cutting two hours off this paricular flight, the jet stream saved Northwest about $400.

•

Aviation purchases play a part in building many apparently unrelated industries. A typical example is the case of Paper Manufacturers Company of Philadelphia, Pa. PMC has just dedicated a new 200,000-square-foot plant in northeast Philadelphia, in memory of its founder, **F. A. O'Neil.** The plant, which marks completion of a five-year expansion program, will produce gummed paper, small roll specialities, and communications papers. The aviation industry is a major customer for PMC communications papers and some of its allied products.



BEFORE AND AFTER: Vickers' variable displacement pump.

Engineering Cuts Supercharger Work

Eastern's unscheduled removal rate on cabin superchargers drops 85% after corrective engineering.

By Joseph S. Murphy

VICKERS hydraulic drive components in the cabin superchargers of Eastern Air Lines' Constellations caused the unscheduled removal of only one supercharger for each 9,507 hours of unit operation during the last quarter of 1951. In 1950, according to Walt Flinn, Vickers' airline service engineer, only 3,313 hours had been flown per removal; in 1949, when corrective action first got under way, removals were coming every 1,470 hours. Corrective engineering, long a controversial subject in the equipment field, had dropped Eastern's unscheduled removal rate by 85 percent.

Improved operation as the result of the engineering changes has not been confined to EAL. TWA operates similar equipment on relatively long overwater flights and, according to Flinn, during the last quarter of 1951 experienced only one unscheduled removal for hydraulic reasons in each 38,072 hours of supercharger drive operation. The difference between this operation and EAL's shorter flight schedule is said to account for the lower removal rate.

Other operators using such equipment in DC-6 and Convair aircraft have experienced similar results. One operator complained in 1948 of supercharger overhaul costs of five dollars an operating hour. A recent check indicated that the same accessory is now being overhauled for about 70 cents an hour.

Poor reliability and high costs experienced with the Constellation pressurization and air conditioning systems had brought about a meeting in New York of 42 representatives of Lockheed, AiResearch, Vickers, and the airlines operating Constellations in September, 1948. Major concern was the supercharger and its hydraulic control circuit. To secure first-hand information on actual Constellation operating conditions, a group of engineers was assigned to fly in line service for a 10 day period.

Using about 300 pounds of airborne test equipment, they conducted most of the detailed service investigation at Miami, the base for EAL's operation of Constellation aircraft on a high daily utilization with schedules of a nature that presented the supercharger with the toughest possible service.

Before and After

Immediate supercharger modifications, together with subsequent changes resulting from added service experience, soon manifested themselves in improved hydraulic drive service. The drawing, above, shows one of the significant points of the program: the "Before and After" of Vickers' variable displacement pump.

Two variable displacement pumps, one Vickers fixed displacement pump, and a planetary gear arrangement constitute the major parts of the hydraulic drive of each supercharger. Because of the damaging effects that internal failure of these pumps may have upon the supercharger itself in the form of metal contamination, the effort to engineer the finest parts and to develop the most precise assembly procedures pays off. Frequent bearing failures and the resultant system contamination kept pump overhaul costs high and reliability low. The design and installation of special Class 5 Radial Bearings and Aetna Pure Thrust Bearings reduced the problem to a negligible one. Although the expense of such modifications ran high, they could in most cases be incorporated as new parts when the original details became worn and required replacement.

400% Improvement

Net result of this corrective engineering may be difficult to assess in such terms as the value of improved passenger comfort, but there is nothing intangible about the reduction in line maintenance and overhaul costs that it has produced. To EAL it meant a 400 percent improvement in its unscheduled unit removal rate within a three-year period.

CAA Invites Bids For Leasing a C-54A

The Civil Aeronautics Administration is soliciting bids for leasing a Douglas C-54A under a revocable license arrangement. Bids close at 2:00 p.m., July 28. The plane can be inspected at CAA's Aeronautical Center, Will Rogers Airport, Oklahoma City, from 9:00 a.m. to 4:00 p.m. on weekdays.

Total airframe time is 3,374 hours and the plane has not been operated in three years. The bid invitation asks prices offered for the plane's use per month on a graduated scale.

Saunders Manages Daily

Keith Saunders, with American Aviation Publications since 1947, has been named Managing Editor of *American Aviation Daily*. He succeeds Daniel S. Wentz II who resigned to join the National Advisory Committee for Aeronautics as public relations director for Ames Aeronautical Laboratory, in California.

Saunders

Saunders has served in several key editorial positions with American Aviation including assistant managing editor, airports editor and legislative editor. He has been in newspaper and magazine work for more than 20 years specializing in aviation and transportation activities during the past 10 years. He is also managing editor of *National Aeronautics*, official journal of the National Aeronautic Association.

Crash Fire Equipment Key To Ground Safety

Future airport zoning laws will place more emphasis on the safety of the people on the ground, according to Jerome Lederer, director of the Flight Safety Foundation, in a speech to more than 150 civil and military representatives attending the Aviation Seminar of the National Fire Protection Association's annual convention in New York.

Blackstone

Lederer

Lederer indicated that such developments as the crosswind landing gear and the Cornell Research tire tread, with an ice coefficient equivalent to the standard tire on concrete, will make prevailing wind conditions of less consequence in airport layout.

The uni-directional runway holds the most promise in future airport design, he explained, because of the many advantages it offers, including simplified traffic patterns, localization of areas to be protected by ground crews, reduction of area affected by noise of low flying planes, and easier snow removal. Another attribute is the reduced airport area needed, with the resultant saving in airport maintenance and operating costs.

1/100th of a Penny

On the subject of ground safety, Lederer noted that the odds against the occurrence of three major accidents in a one-half square mile area inside of 60 days are calculated at about 36 million to one. Consequently, if each and every person living in the areas surrounding the 87 large airport centers in the U. S. were to insure himself for $5,000 against death by falling aircraft, the cost of a six-year policy to each individual would be about 1/100th of a penny.

Thirty-five percent of aircraft accidents occur on the airport itself; 26 percent of these occur during take-off operations and seven percent on approach or landing. The balance involves airport ground handling.

The availability of crash rescue equipment, preferably with a full-time crew assigned, is the Number One criterion for effective emergency service, in the opinion offered by Charles W.

Carmody, CAA Airways Operations Division, in a paper given before the seminar. Of secondary import is the mobility and flexibility of the equipment; two-way radio communication best insures these features. The amount and type of equipment is the third element of importance, said Carmody, stressing that all three must be improved.

The Symposium also heard that wind direction is not considered a factor in crash-fire training at Lowry Air Force Base, according to Captain Albert C. Peterson, director of the base. The approach to a crash taught at Lowry varies only according to the type of aircraft involved. Peterson cautioned civil airport representatives in attendance of the importance of approaching crashed fighter equipment from the rear at all times, regardless of prevailing wind conditions, since the ammunition and rockets carried by this type aircraft make a frontal approach highly inadvisable.

Practical Teaching

From 400 to 1,500 gallons of fuel are burned daily at Lowry involving anywhere from three to 15 actual fires, in the practical teaching of crash-rescue techniques. Equipment at Lowry ranges from the Model O1 truck carrying 6,000 pounds of CO_2 and 300 to 500 gallons of foam, to the latest Model O11 with 1,000 gallons of foam, two turrets, and under-body nozzles.

Simplified grounding procedures to preclude fires resulting from static electricity were recommended by George Prussing, consultant engineer, in a lecture on the control of static in fueling operations. A simple bonding of the hose nozzle to the filler neck instead of the more complicated "Y" method now employed, is advised by Prussing. He indicated that his suggestion applies whether the fuel hose is conductive or non-conductive.

Part 40 Revision

Present Civil Air Regulations require grounding to a point of zero electrical potential, and the "Y" method used by operators to satisfy this requirement consists of grounding the truck, the aircraft, and the aircraft to the truck by means of a "Y"-shaped ground lead.

Following Prussing's speech, NFPA Secretary George Tryon indicated to the group that both the Bureau of Standards and the Civil Aeronautics Board had been approached on the subject. The latter has indicated that detailed fueling requirements are eliminated in the proposed revision to Part 40 and that they will instead be required in each op-

erator's manual or operations specifications.

The Bureau of Standards has not conducted tests to date to support or refute the Prussing recommendation, although NFPA has requested that they be considered. It was understood that NFPA would look favorably on such a request if received from either the CAB or the CAA.

Rear-Facing Seats Postponed in Australia

Following protests from the airlines, the Australian government has temporarily postponed issuing its proposed order compelling the use of rear-facing seats on new civil transports acquired by the country's airlines.

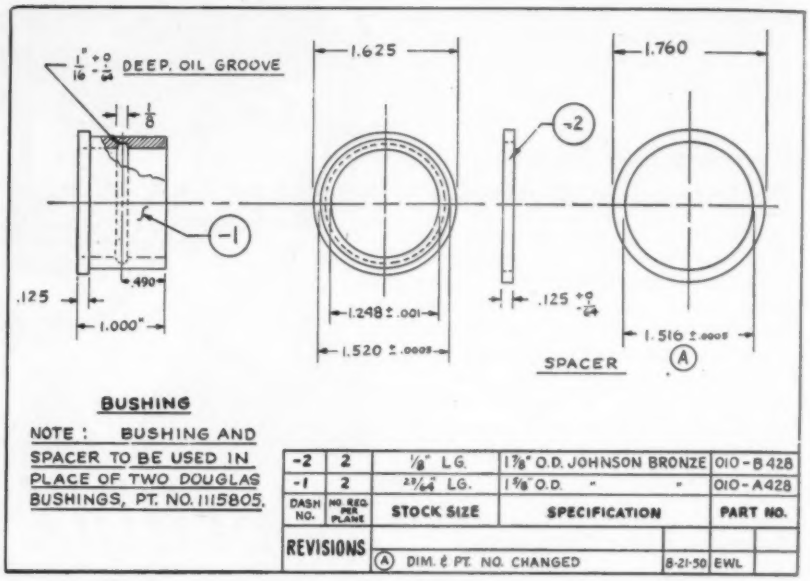
The postponement will give the carriers a chance to contact manufacturers and find out whether changed seat direction is possible in planes they intend to acquire.

Family Plan Extended

Extension of the domestic airlines' half-fare family plan for an additional year through June 30, 1953, has been approved by CAB. Northwest Airlines, which in June was blocked by CAB from canceling the plan, agreed to and participated in the extension. Robinson Airlines and Trans-Canada Air Lines are not parties to the new tariffs.

Ralph L. Bell has been appointed to head the sales organization of Boeing Airplane Company. In sales engineering for Boeing since 1946, Bell replaces Frederick B. Collins, who resigned as vice president-sales manager, to accept a position as president and general manager of a Seattle corporation.

Maintenance Bulletin Board



BUSHING

NOTE : BUSHING AND SPACER TO BE USED IN PLACE OF TWO DOUGLAS BUSHINGS, PT. NO. 1115805.

DASH NO.	NO. REQ. PER PLANE	STOCK SIZE	SPECIFICATION	PART NO.
-2	2	1/8" LG.	1 7/8" O.D. JOHNSON BRONZE	010-B428
-1	2	23/64" LG.	1 5/8" O.D. " "	010-A428

REVISIONS			
A	DIM. & PT. NO. CHANGED	8-21-50	EWL

Tail Fork Bushing Reduces Wear

Frontier Airlines has hit upon a way to improve the service life of Douglas Aircraft Company part 1115805 at the upper end of the tail fork on DC-3 type aircraft. This bushing frequently gets loose in the fork and wears the fork proper.

Frontier's correction (see drawing) consists of a through bushing and spacer ring in place of the split bushing originally used. The worn fork is reamed to true up the hole and the newly designed bushing pressed in with a .003" maximum press fit.

This has eliminated loosening of the part and improved wear quality, according to Kenneth W. Stevenson, Frontier's maintenance coordinator.

Ceramic Coating Guide

Barrows Porcelain Enamel Co., Cincinnati, has prepared a guide for applications of ceramic-coated metals in jet airplane engines in order to allow a convenient method of determining metal specifications according to heat resisting properties.

Since an attempt was made to evaluate physical properties at high temperatures, intergranular corrosion and rupture or failure due to fatigue strains at high temperatures can be avoided by following suggested temperatures.

Pump Checks Dessicators

Trans World Airlines has adopted a suggestion for use of a vacuum pump in testing the air-tight condition of the dessicator system in each of the windows of the Lockheed 049. The suggestion was adopted to cut down the number of difficulties experienced with fogging windows on this aircraft. Air-tight installations will normally prevent fogging. In practice the pump has saved time and cut down on fogging.

Cleaner Zerk Fittings Mean Less Wear on Parts

Excessive wear on moving parts normally lubricated by zerk fittings is sometimes caused by fittings clogged with dirt or other foreign material. One airline has circulated these instructions to its maintenance men to free the stuck ball ends of zerk fittings:

1. Remove the nozzle and pipe from the pressure-type grease gun and force the grease out of the pipe.

2. Fill pipe with penetrating oil,

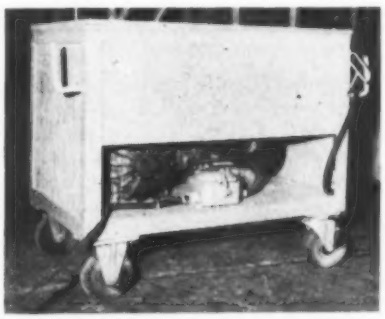
then reconnect pipe and nozzle to pressure gun.

3. Apply nozzle to zerk fittings. The penetrating oil enters the zerk fitting and cleans it and flows through by being pushed by grease.

4. Make sure all penetrating oil is out of joint by allowing grease to flow completely through joint until fresh grease appears.

C & S Streamlines Maintenance for 340's

Chicago & Southern Airlines has announced the streamlining of its maintenance organization and facilities in preparation for the delivery of its fleet of Convair 340 aircraft, starting in June, 1953.

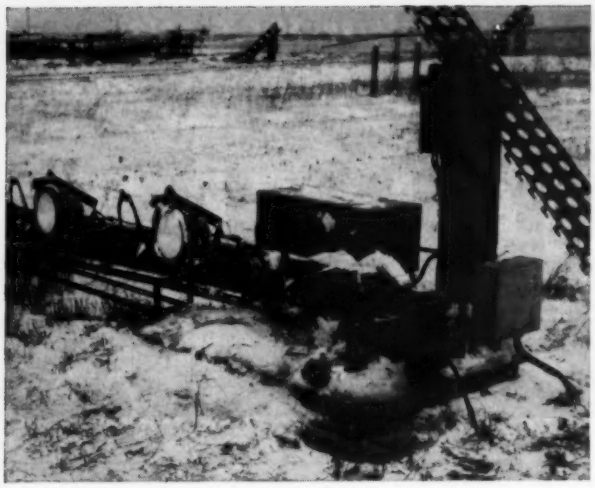


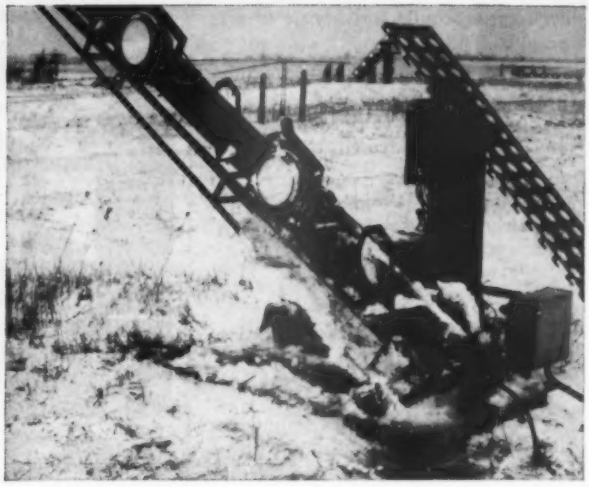
Generator System Unit Speeds Engine Tests

A mobile generator system test unit developed by employees of the Greenville Division of Temco Aircraft Corp., saves time and money in the overhaul of C-54 transports for the Air Force.

Single-engine tests can be performed in the hangar as soon as the wiring is installed, as the unit's design permits testing without running the engines. Engine run-up time is thereby reduced and generator-system squawks which would occur on the flight line are detected and corrected beforehand.

The unit consists of a C-54 generator powered by a ½ hp a. c. motor mounted on a wheeled cart. One of two leads provides power to the motor. The other is connected to the three generator connections on the aircraft. In operation the test unit simulates engine operating conditions and permits complete check-out of the metering, reverse current relay and voltage regulator circuits. Only the equalizing circuit, which requires more than one engine operating, cannot be checked.





Retractable slope line approach lights have been under test by CAA. These units, built by Emarco Corp. of Dayton, Ohio, provide for a motor-driven hydraulic power unit which automatically extends the lights to the 45 degree position when the approach-light switches are operated. When the lights, which extend 10 feet above level ground when in use, are not being used, they retract so as to clear the area of obstructions.

IATA Survey: Decrease In Cargo Documentation

Documents required for international air cargo shipments by 133 governments have decreased substantially, according to an International Air Transport Association Survey made of the results of government and airline efforts to streamline customs and other formalities found in air travel.

No documents at all are now necessary in four countries and 67 nations are now requiring only basic commercial invoice. Ten others require the invoice plus an additional paper, which is usually a certificate of value.

The International Cargo Invoice recommended by ICAO has been adopted by 54 countries as a standard single commercial cargo document.

The survey disclosed that only 10% of the 133 governments still continue to demand consular visas on invoices and to levy fees for them.

North Atlantic Weather Patrol Extended

Eleven nations have agreed to extend the agreement under which 25 ships will be continued on weather patrol duty in the North Atlantic through June 30, 1954. The protocol was signed in Montreal.

The program will be revised next year when a special conference will be held to examine operating experience. The ships have been providing navigational assistance, as well as search and rescue service when necessary, to planes flying between Europe and North America.

CAR Amendments Tighten Up on Pilot Ratings

Bureau of Safety Regulations proposes to amend Part 21 of the CAR so that all certificates with airline transport pilot ratings have a horsepower rating.

Parachute - testing dummy falls like a man. Skeleton, loaded with lead, is covered with foam rubber. Designer of the skeleton, W. S. Ruff, is shown examining the 182-lb. device, product of Hairlock Co., Ltd., London.

Presently effective certificates having horsepower ratings will not be valid after May 1, 1953, and on application prior to that date certificates will be reissued with category, class, and appropriate type ratings for each aircraft.

A proposed amendment to Part 43 would not allow a private or commercial pilot to serve as pilot in command of aircraft carrying passengers or operated for remuneration other than in aircraft of the category and class for which he is rated.

The proposed amendments are encompassed in CAR Draft Release No. 52-17.

Overhaul Contract Let

A contract calling for 8,000-hour major overhaul of two Lockheed Model 049 Constellations has been awarded to Lockheed Aircraft Service-International by Linea Aeropostal Venezolana. Work will start on the first aircraft in early August, with the second airplane scheduled for mid-October, at N. Y. International Airport, the LASI base.

US-Canada Agreement

The United States and Canada have ratified an agreement whereby citizens of either country may operate certain radio equipment or stations in the other country. Among the groups deriving benefit from this move are pilots who, if qualified as radio operators in either the U. S. or Canada, will be allowed to operate transmitters installed in civilian aircraft registered in either country.

PAL Pacemasters Fly Nautical Miles

Pioneer Air Lines is operating its nine-plane Martin 2-0-2 Pacemaster Fleet, which went into operation on June 23 following the sale of its DC-3's on the nautical-miles-per-hour standard. Long before the surprise CAB hearing on May 27, the entire Pacemaster renovating program, pilot training, and operations manual preparation was instituted and geared for the nautical-mile changeover.

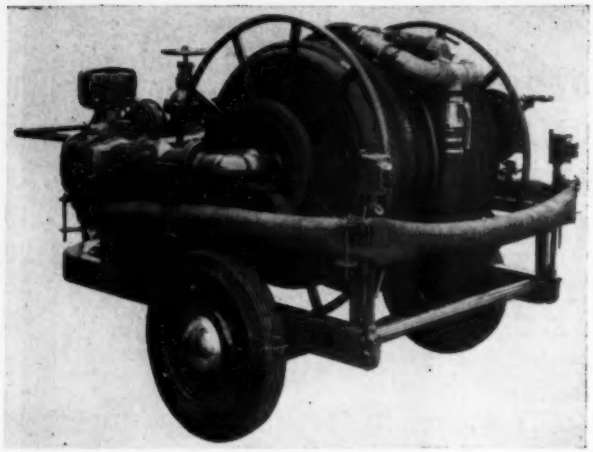
The day before the hearing, CAA approved PAL's manuals, which were all made up for the new standard. It was impossible for the carrier to change back, financially and time-wise, so even after the CAB's decision PAL had to stay with the change.

ATC to Operate Low-Fare Honolulu Service

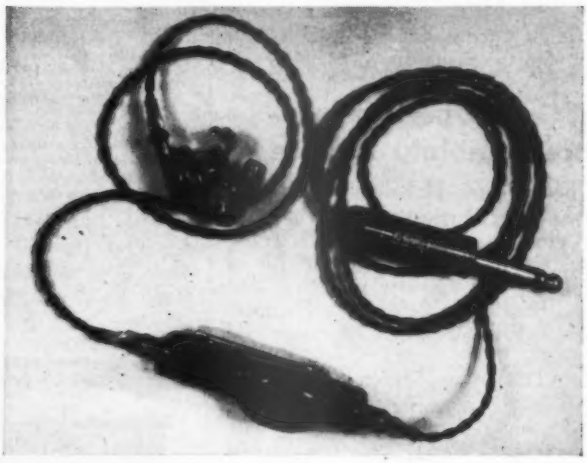
A California-Honolulu Constellation service at $129 one-way fare is planned for the near future by Airline Transport Carriers, large irregular carrier affiliated with California Central Airlines, headed by Col. C. C. Sherman. Fare is $31 under Pan American and United.

ATC has application on file with CAB for the route, but will operate the service on a non-scheduled basis with eight flights monthly from Los Angeles and eight from San Francisco. The Connie, a resurrected BOAC plane which was damaged in a landing accident in England, will be converted to high-density configuration of 61 seats, but not in the conventional 3-and-2 coach pattern.

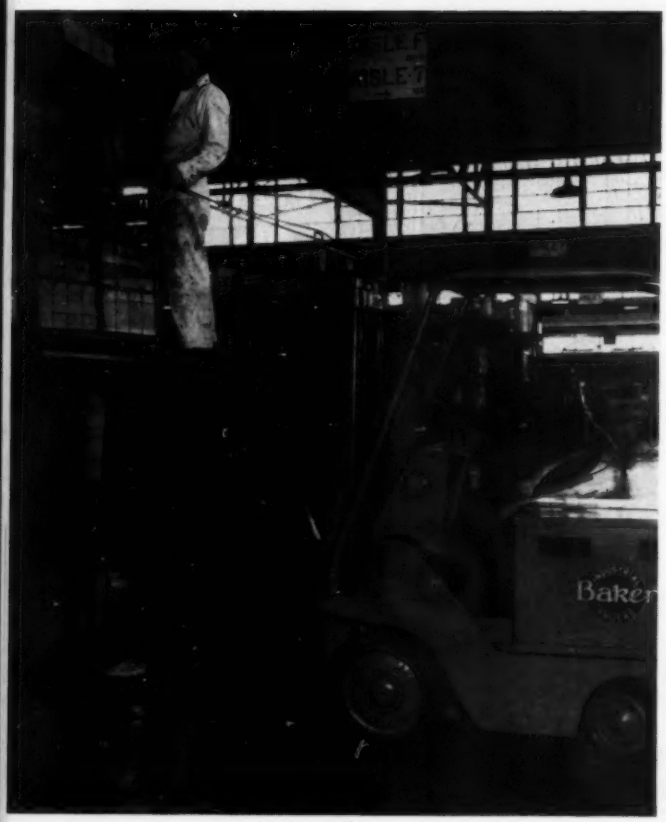
Cecil Meadows, president of American Association of Airport Executives, with plaque awarded him by California AAE for his contributions to airports and airport management.



Fueling Hydrant announced by Harman Equipment Co. accommodates entire hose assembly on reel. Two 75-foot lengths of 2½" hose are connected to a 10-foot length of 3" hose at a swivel "T" connection, replacing the rigid "Y" previously used. Hose is power rewound. Address: Harman Equipment Company, 3605 E. Olympic Blvd. Los Angeles 23, California.



Single-phone headset weighing only 2½ ounces and supported by a custom-fitted plastic earmold has been announced by the Airphone Co. CAA-approved assembly also includes lapel volume control, double-twisted vinyl-covered cords, and PL-55 plug. Feature of "Air-phone" is that it is used with one ear, leaving the other clear for cockpit conversation. Address: Airphone Co., Suite 309, Calumet Bldg., Miami, Fla.



Fork truck as elevator. A Push button control attachment for fork lifts permitting the operator to raise and lower himself on the fork's pallet has been announced by the Baker-Rauling Co. The attachment is designed for stock room assistance in reaching slow moving items. Address: Baker Rauling Co., Baker Industrial Truck Division, 1230 West 80th Street, Cleveland 2, Ohio.

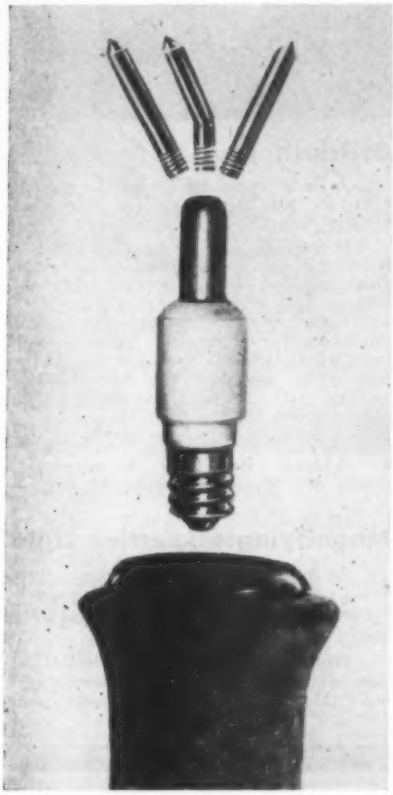
New Products

Dry Lubricant

A dry lubricant, Synthetic Colloidal Graphite, marketed in 12 oz. aerosol dispensers, has been made available by Reynolds Industries, Inc.

The lubricant is resistant to extremely high or low temperatures and is reported non-toxic and non-inflammable. The aerosol dispenser is intended to eliminate the inefficiencies of hand or brush methods of application.

Address: **Reynolds Industries, Inc.,** 4500 Euclid Ave., Cleveland 3, Ohio.



Thread-In Tips

A soldering iron thread-in tip unit, trade name Elkaloy Tiplets, has been announced by Ungar Electric Tools, Inc.

Providing three interchangeable tips usable in a single heating unit, the new product is said to triple the efficiency of the Ungar Soldering Pencil with which it is used. Elkaloy 'A' used in the manufacture of the tips replaces copper and is reported to require no flux or paste.

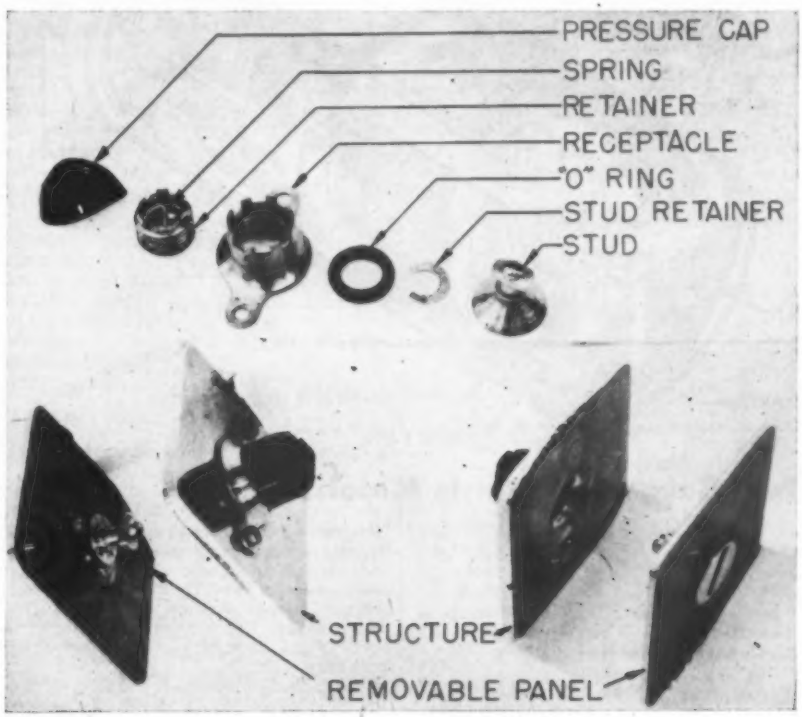
Address: **Ungar Electric Tools, Inc.,** Los Angeles 54, California.

Circuit Breaker

A new thermal type, push-pull, trip-free circuit breaker especially designed to meet needs of heavy aircraft electrical systems has been added to the Spencer thermostat line.

Designated the D6752 circuit breaker, the new unit has a magnetic assist which provides instantaneous tripping action on heavy overloads and, combined with a wide gap in the breaking contacts, assures high rupturing capacity. Once opened it remains open until manually reset by the push button. Under dangerous overloads the contacts can not be held closed even by fully depressing the push button. Weighing less than 2.5 ounces, the D6752 unit is available in ratings from 5-50 amperes.

Address: **Spencer Thermostat Div.,** Metals & Controls Corp., Attleboro, Mass.



Quick-Release, High-Strength Fastener Invented

A high-strength, quick-release fastener invented by an engineer for Grumman Aircraft Engineering Corp. has successfully passed rigid vibration, cycling, tension, and shear tests. Designed not to deflect under load in high-speed flight conditions, the retainer is locked in place by bending one or more tabs of the receptacle into the slots of the retainer. A pressure cap and "O" ring are optional parts where needed for high internal air or oil pressures.

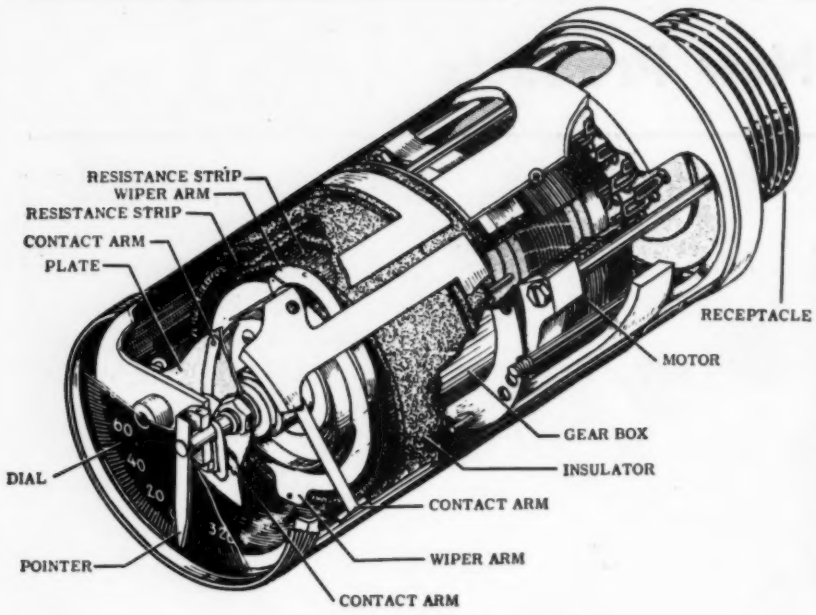
Address: **Harold E. Koch,** 158 32 St., Lindenhurst, N. Y.

One-Hand Disk Grinder

A precision high-speed disk grinder nine inches long, weighing only four and one-half pounds, and called the Diskette has been announced.

Designed for easy use in close quarters, the Diskette features one-hand operation with perfect control. It uses a 110 volt a.c.-d.c. motor, is integrally air cooled and protected by a dust filter.

Address: **Balmar Corp.,** Woodberry, Baltimore, Md.



Fuel Gauge Indicator Is Motor Driven

Initial shipments of the Pacitron fuel gauge indicator have been announced by Simmonds Aerocessories, Inc. Interchangeable in installations for which it is designed, the Pacitron indicator, which is motor driven, is said to be more accurate than units formerly available.

Accompanying the new indicator in the Pacitron system is a miniature amplifier weighing only slightly over one pound. Designed to recognize the related problems of heat generation, dissipation, vibration, and vacuum tubes, the amplifier includes shock mounts which feature light coil springs damped in steel wool pads. To insure longer life the tubes operate at a lower input, minimizing heat dissipation problems.

Address: **Simmonds Aerocessories, Inc.**, 105 White Plains Road, Tarrytown, N. Y.

New Hand Grinders for Mounted Wheels

Three new hand grinders Models 137, 146, and 148 have been announced by Skilsaw Inc. for use with mounted wheels and points. Of lightweight construction, they are designed to meet the needs for maneuverable and powerful utility grinders.

Specifications: Model 137—5/32" geared chuck 20,000 rpm; Model 146—⅛" and ¼" collet chucks 20,000 rpm; Model 148—⅛" and ¼" collet chucks 36,000 rpm. Models 137 and 146 accommodate shank accessories 1¾" and smaller. Model 148 is for use with 1" and smaller accessories. All are less than 10" long and weigh about two pounds.

Address: Skilsaw Inc., 5033 Elston Ave., Chicago 30, Ill.

Solder Tape

A tape solder said to be usable without tools has been announced by the Blonde Oil Co. A 40/60 tin-lead solder packaged in the form of metallic tape, the product features application with a single match.

Address: **Blonde Oil Co., Solder Div., 464 Woodward Ave., Brooklyn, N. Y.**

Gritcloth

A new type sandpaper known as Gritcloth, has been placed on the market by Bay State Abrasive Products Co.

It consists of an open-mesh fabric in which has been imbedded a tough abrasive. The design is such that the loosened particles pass through the mesh and thus never clog the abrasive surface, rendering it useless, as happens with ordinary sandpaper. Available in all the finer grits, Gritcloth may be used wet or dry, flat or folded, on sanding machines or by hand. It can be cleaned by rinsing in water.

Address: **Bay State Abrasive Co.**, Union St., Westboro, Mass.

Magnifying Inspection Light

An aid to industrial inspection is provided in a portable fluorescent magnifying fixture called Lite-Mite, announced by Stocker and Yale, Inc.

Producing cool, glare-free illumination and high magnification, the Model 66SV Magnifier is equipped with either

a two- or four-power lens of 2" by 4" dimensions. Fluorescent tubes rated at 7,500 hours average life are used. A hinged lens holder permits use of light without lens.

Address: **Stocker & Yale, Inc.**, Marblehead, Mass.

Hand Mitering Tool

A hand mitering tool, called Metalmitre, has been placed on the market by the Lander and Abbott Co. Usable with non-hardened steel up to 1/32" and copper or aluminum up to 1/16", Metalmitre is designed for the notching, slotting, and mitering of moulding, sheetmetal, fiberboard, plastics, and masonite.

Address: **Lander & Abbott**, La Crescenta, Calif.

Technical Literature

ELECTRICAL FITTINGS: A 12-page, illustrated catalog, designated No. 52, has been put out by the Buchanan Electrical Products Corp., to describe its complete line of solderless wire connectors, cable and conduit fittings, and wiring devices. Specifications, dimensions, application instructions and ordering information are included. Write J. O. Johnson, 225 Route 29, Hillside, New Jersey.

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TEMPERATURE PICKUPS: Functions of the Type 21 bulb temperature pickups, manufactured by Trans-Sonics, Inc., Bedford Airport, Bedford, Mass., are detailed in the companys technical bulletin. Graphs and drawings are used to show performance. Table of characteristics and prices, as well as complete specifications, are included.

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GENERATORS AND ALTERNATORS: Jack & Heintz, Inc., Cleveland 1, O., gives complete model data on its generators and alternators in Technical Bulletin No. 1200. Also outlined in the eight-page booklet are the types of cooling systems used.

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FORK LIFT TRUCKS: Three new bulletins are used to illustrate The Buda Company's new "FT Series" fork lift trucks. Bulletins #1579, #1580, and #1581 handle, respectively, trucks of 3,000 lbs. with 24 in. load center, 4,000 lb. capacity at 18 in. load center; and 4,000 lb. capacity at 24 in. load center. They can be obtained from the company, located in Harvey, Ill.

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CAA INDEX: Aviation Safety Release No. 357, is a revised index of Aviation Safety releases and Civil Aeronautics manual supplements. It supersedes Aviation Safety Release No. 331 and is up to date as of March 1. Index may be obtained from the Civil Aeronautics Administration, Washington 25, D. C., attention W-58.

THERMISTORS: General basic information relating to physical and operating characteristics of Thermistors are detailed in a 30-page catalog prepared by the Carboloy Dept., General Electric Co., Detroit 32, Mich. Typical applications and wiring diagrams are listed, along with graphical data of temperature-resistance ratio characteristics for rod, disc, and washer types. Suggested applications are set forth.

Airline Commentary

By Eric Bramley

POLITICAL CHARTERS are bringing substantial revenue to the airlines. TWA has copped a nice share by handling a lot of the much-sought Eisenhower business (someone has pointed out that Ike's brother, Arthur, is a TWA director, a factor in its favor). Two TWA Connies took Eisenhower's party and the press from Washington to Kansas City, from which point he proceeded to Abilene by train. He rode an American charter from Kansas City to New York, with TWA handling the press, and also flew United in the West. TWA flew him New York-Harrisburg on a Martin 4-0-4. Charters should add up as the campaign progresses.

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Last issue we wrote about Gus Kane, the Northwest Airlines traffic representative in Washington who went blind several weeks ago after having severe headaches for a long time. His illness so far has baffled doctors. He has five kids, expecting a sixth, and has no income. His buddies, determined to help, organized Gus Kane Night (beer and the hall donated) without his knowledge.

We attended. It was a steaming hot night when everybody should have stayed home cooling off. But they didn't—the hall was packed. We can report that funds collected for Gus are now near $2,000, instead of the expected $1,000.

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Recently we reported that airline employes in Wheeling, W. Va., were to spend only silver dollars during Air Transportation Week in that city. Inasmuch as cartwheels are rare in Wheeling, the idea was to import some and show what airlines (All American, Capital and TWA) meant to the community in purchasing power. We wondered how many were put into circulation.

R. I. Brayley, Capital Airlines' district cargo sales manager in Pittsburgh, who took part in the event, tells us that the answer is 950 silver dollars. But it turns out that this idea was only a small part of the week's activities. The program sounds like good sales promotion. Here's what happened:

Airline representatives made 400 personal sales calls. Fifteen airline films were shown to 121 groups with total audience of 13,349. Four radio spots were obtained and 38 stories about the week's happenings appeared in three area newspapers. Twenty-four airline and express exhibits were placed in prominent locations—theater lobbies, hotels, etc. About 785 pounds of pineapples were flown from Hawaii to be featured at three luncheons. Airlines sponsored a Red Cross blood drive, there was an open house at the airport, and conducted tours of the terminal.

Brayley says many more people were made more aviation conscious. This we can believe.

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The airlines carry less than 1/10 of 1% of the volume of cargo hauled by the railroads, according to Warren Dickenson, Douglas Aircraft Company executive engineer. In a paper titled "Air Freight Today and Tomorrow," Dickenson said: "It may sound like a large number when we say that in 1951 the domestic certificated airlines carried *205 million* ton-miles of freight. But let me tell you in 1950 Class I railroads of this country transported over *208 billion* ton-miles in manufactured and miscellaneous carload lots, less-than-carload lots, and freight forwarder goods alone."

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Thanks to **L. Derr,** chief Skycap at LaGuardia Field, for sending us copies of the skycap's new houseorgan, *The Handtruck*. One of its principal aims is to promote better skycap service by pointing out jobs well done and situations where improvement is needed. For instance, it keeps a box score of inter-line bags handled and the number that misconnected, urging the boys to reduce the latter figure. In May, the score was 407 missed out of 12,185 handled. An interesting and informative publication.

High-Intensity Lights
(If operated 300 hours per month)

Step	Kilowatt hours	Cost *
5	3870	$77.40
4	1920	38.40
3	1110	22.20
2	720	14.40
1	390	7.80

Medium-Intensity Lights
(If operated 300 hours per month)

3	840	16.80
2	510	10.20
1	360	7.20

* *Costs are based on 5,000 foot runways, 150 feet wide.*

COST FIGURES show economy of airport lighting.

Airport Lighting Can Up Revenues

Racine reports gas sales up 50% as AAAE conference learns runway can be lighted all night for $9.40.

By William D. Perreault

THE MAINTENANCE electrician for many years has been plagued with overwork and under appreciation if he maintained an airport lighting installation in first class operating condition, according to Lloyd E. Harrison, airport lighting engineer in CAA's Seventh Region.

Last month the American Association of Airport Executives attempted to do something for the hard-pressed airport lighting technician. Largely due to the personal efforts of Jack Bolton, superintendent of Port Columbus, (O.) Airport, the AAAE set up its first Airport Lighting Conference. Success of this program was unqualified and the general feeling, as the meeting closed, was that it will become an annual event.

On hand to help keep the conference rolling were AAAE President Cecil C. Meadows, Walter E. Betsworth, executive secretary of the organization, Wayne W. Parrish, publisher of American Aviation Publications, and numerous equipment manufacturers' representatives, a number of whom set up displays in the conference rooms.

The meeting was hardly underway when it became evident that, while the airport manager might derive benefit from the program, it was the technician's program. The papers which were best received and stirred the most discussion were those which included working information—what results were being obtained with specific tools, how to make good cable splices, lighting costs, spare parts requirements, etc.

$12 Million Spent

More than $12 million in airport lighting funds have been spent by the Federal government under the Federal Aid Airport Program, CAA's airport chief, Phillips Moore, appearing as a luncheon speaker, told the conference. This means that double this amount has probably been spent when state and local funds are considered.

What is the economic justification for airport lighting? No one need delay installation of airport lighting or turn off lighting already installed for economic reasons, according to Charles Duke, airport manager at Bendix Field, South Bend, Ind. Duke gave the conference some useful facts:

• **Amount of gas pumped** at Racine (Wisc.) Airport, where twenty executive type aircraft are based, increased by 50% within two months after a low-cost runway lighting system was installed.

• **At Racine,** where electricity costs about two cents per kilowatt hour, it costs only $9.40 to light a runway all night.

• **In the Mid-West,** according to a survey, high-intensity lights are used on Step I, the dimmest position, with only low current consumption, over 90% of the time they are in use.

When South Bend first installed its high-intensity runway lights and medium-intensity taxiway lighting, meters were installed in the individual circuits to get factual data on power requirements and costs. This produced the figures in the accompanying table.

Actually South Bend's experience indicates high-intensity lights would not operate at full brightness more than 60 hours per year. Taking this into consideration, a survey of middle western airports established the following "Use Ratio" for high-intensity lights:

Annual Use Ratio

Step	Hours Operation	% Total
5	56	4.4
4	10	.8
3	23	1.3
2	15	1.2

Tools of the Trade

MAINTENANCE of airport lighting is largely the responsibility of the airport electrician. Sometimes he is a full-time employee, sometimes he is the local electrical contractor. In either case there are certain tools he'll need to do his job quickly and effectively, according to Lloyd E. Harrison, airport lighting engineer in CAA's Seventh Region:

• **Hook-on type voltmeter,** to determine voltage values which are closely related to system troubles.

• **Megger,** an instrument for measuring electrical system resistance in meg ohms, which provides a simple check of system continuity and integrity.

• **Locator,** a $150-200 unit for detecting a cable run, whether for working on it or avoiding it during construction. Also useful in locating water and gas lines, hidden manhole covers, etc.

• **Cable fault locator,** a signal generator and detector used commonly by telephone companies to locate "feeders" for beacons, wind indicators, etc. Might be used with a headphone for audible signals or with a meter.

• **Portable type air compressor** and receiver tank, making air pressure available to clean away area around lights to provide good working surface, keep sand and dirt out of parts and connectors, clear away broken glass, snow, etc.

People

Wason

Coburn

ADMINISTRATIVE

V. Chase Wason, general sales manager of Mid-Continent Airlines, has been appointed head of the company's traffic and sales department, replacing **Hugh W. Coburn,** vice-president-traffic and sales, who has resigned to become general sales manager of Yellow Transit Freight Lines, Inc.

Louis E. Leverone and **E. B. Slocum** have been elected to the board of directors of Frontier Airlines. Leverone was formerly board chairman of Midway Airlines, Chicago air-taxi service, and is a past president of the National Aeronautics Association. Slocum is vice president of the Central Bank and Trust Company of Denver.

Robert O. Kinsey, former CAB official, has become assistant to Pacific Northern Airlines' president **Arthur G. Woodley.** Kinsey had served as director of CAB's Alaska office from 1949 until September, 1951, when he resigned to enter private business in Anchorage.

Kinsey

Dror Galezer has been named by El Al Israel Airlines to succeed **Dr. Shlomo Peled** as administrative director of the company's North American division. Dr. Peled is returning to Israel.

Frank F. Rox, Atlanta attorney, has joined the legal staff of Chicago & Southern Air Lines in Memphis. He becomes assistant general counsel for the company, filling the vacancy created by the transfer of **L. E. Black** from that post to the position of assistant to the vice president-operations.

Edward P. Critchley, veteran airline executive and one of the few original employes of Pan American World Airways, has transferred to a new post in PAA's regional offices in London after nearly 25 years with the company's Latin American division. For the past seven years, Critchley had been assistant to the division manager.

OPERATIONS-MAINTENANCE

William Cowden advanced by Pan American World Airways from assistant to operations manager at San Francisco International Airport. Cowden succeeded **Q. A. Campbell,** transferred to Guam as station manager there.

Captains L. F. Heacock and **G. G. Jones** have been named flight managers by United Air Lines at Los Angeles and Seattle, respectively.

F. M. McGregor, formerly Trans-Canada Air Lines' Atlantic regional operations manager, has become director of development for Canadian Pacific Airlines.

Three newly-created posts of regional superintendent of operations have been filled by Northwest Airlines as follows: **Raymond C. Anderson,** Eastern region, formerly manager of station

Anderson

Petersen

operations; **Arthur T. Petersen,** Western region, formerly western regional superintendent of stations; and **Paul Benscoter,** Orient region, formerly Orient superintendent of stations. **D. C. Evans** promoted from Eastern regional superintendent of stations to stations division manager, succeeding Anderson.

TRAFFIC & SALES

Earle T. Carkin, district cargo representative for United Air Lines at New York since 1945, promoted to system superintendent of mail and express, succeeding **Russ LeBrock,** retired. Carkin will make his headquarters at the company's operating base, Denver.

Carkin

Looney

Harold E. Harwood, former cargo rep. for United Air Lines at Detroit, is now manager of the company's Loop ticket office in Chicago. He succeeded **William Looney,** recently appointed Chicago assistant district personnel manager.

Keith Johnson, d.t.s.m. for Pan American World Airways at Whitehorse, Y. T., Canada, has resigned to join a Seattle travel agency. He is succeeded by **Donald Davis,** formerly connected with the British-Yukon Navigation Co.

Dennis R. Kelley has been transferred by Northwest Airlines as district sales manager at Okinawa to Anchorage, Alaska. Replacing Kelley at Okinawa is **James J. McNeill,** former Tokyo senior sales representative.

PO Wants Surplus Profits Reserve

The Post Office Department is pushing CAB to require airlines to set up an "earnings equalization reserve" which will assure that earnings in excess of eight per cent (domestically) on recognized investment will be held for application against future mail pay needs. It is being considered as a leading issue in the current Braniff Airways Domestic Mail Rate Case on which public hearings will begin on July 28.

Currently, domestic airlines are usually assured of at least an 8% return on investment through CAB mail pay awards. If a carrier is on a final rate and its return exceeds 8%, such excess is the carrier's gain. But the P.O. would put the excess into a reserve to be tapped only when the return on investment drops below 8%.

The Post Office entered the Braniff case when CAB proposed a non-subsidy 53c per ton-mile mail rate for the carrier's domestic operations. P.O. felt that Braniff's earnings over 8% in the domestic field should be used to offset losses in its international operations. A similar stand was taken by the P.O. in the Chicago and Southern Mail Rate Case, which is now in the U. S. Court of Appeals.

But according to CAB Examiner Barron Fredricks, the P.O. proposal is not limited to offsetting domestic earnings against international losses. He said the "reserve" would be held for future application against a carrier's mail pay needs "either system-wide or international or domestic."

CAB is faced with deciding whether it is legally empowered to request establishment of such a reserve and, if so, "should it, in the exercise of sound administrative discretion, impose such a requirement." CAB's Bureau Counsel and Braniff question the legality of the proposal. But the P.O. says it will present at public hearings an "expert witness" to deal with the feasibility of setting up the reserve machinery.

S & W Exempt for Overseas Cargo

Denied a trans-Atlantic all-cargo certificate last month, Seaboard & Western Airlines has been granted broad exemption authority by the Civil Aeronautics Board to perform all-cargo services to and from the same European countries for which it sought certificate authorization. Award was at the direction of President Truman who had previously approved CAB's refusal to grant a certificate.

New exemption is for three years and permits S&W to operate 12 flights monthly between the United States and each of the designated areas for Government agencies. On these flights, up to 40% of available space may be used for carriage of commercial cargo. Points to which S&W may operate on this basis are those in the Western Hemisphere, Europe, North Africa, Middle East, Far East (including India and Pakistan), and U. S. territories and possessions.

Authorization also provides that unlimited military contract flights operated under a previous exemption and those under the new exemption may be utilized for commercial cargo on the backhaul portion. Also coupled with this is S&W's authority to operate "irregular" transportation under its large-irregular-carrier classification.

Broad operating authority was awarded at a time when S&W was asking CAB to reconsider its denial of the certificate application because (1) the U. S. was losing its position in the trans-Atlantic all-cargo field and (2) national defense required the proposed service.

CAB DECISIONS

• **Alaska Coastal Airlines'** agreement to lease, with option to buy in five years, substantially all of the assets of Alaska Island Airlines, approved by CAB and President Truman.

• **Lake Central Airlines'** temporary mail pay increased by approximately $230,800 annually beginning with January 1, 1952, raising estimated total annual pay to $813,808.

• **Robin Airlines'** non-scheduled air carrier operating certificate continued under suspension by CAB following expiration of a temporary "emergency" suspension ordered by Civil Aeronautics Administrator C. F. Horne. Suspension remains in effect until final CAB decision in proceeding aimed at possible revocation of Robin's operating certificate.

• **Western Air Lines** granted exemption permitting it to make refunds to Los Angeles-San Francisco coach passengers in compliance with an order of the California Public Utilities Commission.

U. S. DOMESTIC REVENUES & EXPENSES, QUARTER ENDING MAR. 31, 1952

Airlines	Total Operating Revenues	Passenger Revenues	Mail Revenues	Express Revenues	Freight Revenues	Excess Baggage Revenues	Non-Scheduled Transport Rev.	Total Operating Expenses	Aircraft Operating Expenses	Ground & Indirect Expenses	Net Operating Income Before Income Taxes
American	$ 37,898,444	$ 32,066,513	$1,906,112	$ 947,450	$2,073,521	$ 368,948	$ 170,881	$ 35,707,678	$ 17,941,478	$ 17,766,200	$ 2,190,766
Braniff	4,401,492	3,896,548	212,800	83,194	112,987	38,421	6,079	4,202,225	2,062,267	2,139,958	199,267
Capital	7,786,037	6,666,035	274,856	248,052	212,854	47,851	196,198	8,984,010	4,291,901	4,792,109	-1,197,973
Caribair	293,724	238,788	31,715	. . . .	9,404	3,133	3,777	268,615	111,251	157,364	25,109
C & S	3,113,554	2,615,597	319,466	75,716	65,286	21,473	3,613	3,011,588	1,436,449	1,575,139	101,966
Colonial	1,092,707	783,138	239,579	12,645	10,813	4,611	2,226	1,276,028	520,598	755,430	-183,321
Continental	2,342,126	1,778,472	391,847	20,981	48,314	13,875	64,327	2,245,715	1,197,341	1,048,374	96,411
Delta	7,525,246	6,727,707	263,723	97,353	216,393	106,183	6,105	6,154,056	3,141,980	3,012,076	1,371,190
Eastern	28,007,316	26,002,819	680,156	350,354	328,374	494,188	70,509	24,284,741	13,449,335	10,835,406	3,722,575
Hawaiian	942,607	668,876	148,424	24,676	81,896	11,922	2,824	967,433	373,150	594,283	-24,826
Inland*	730,109	674,132	28,994	7,683	11,894	5,960	193	724,022	318,910	405,112	6,087
MCA**	2,237,309	1,740,677	387,788	22,397	35,811	14,011	29,309	2,334,665	1,075,590	1,259,075	-97,356
National	8,314,943	7,531,031	203,891	68,448	292,456	161,552	22,164	6,206,551	2,852,031	3,354,520	2,108,392
Northeast	1,201,355	843,107	297,032	22,373	20,348	4,664	1,303	1,656,630	720,066	936,564	-455,275
Northwest	7,026,533	5,777,999	695,713	159,071	200,087	40,735	4,093	8,579,464	4,352,890	4,226,574	-1,552,931
Trans Pacific	379,050	264,218	70,006	3,022	7,424	2,042	27,244	400,054	146,423	253,631	-21,004
TWA	22,452,257	19,235,166	1,332,909	606,010	780,539	175,832	15,962	22,465,357	11,643,894	10,821,463	-13,100
United	28,972,961	23,585,491	2,373,348	804,364	1,235,802	198,292	274,282	26,271,640	11,653,126	14,618,514	2,701,321
Western*	3,137,649	2,769,584	156,828	43,852	48,630	17,903	. . . .	2,804,658	1,333,341	1,471,317	332,991
TOTALS	167,855,419	143,865,858	10,015,187	3,597,641	5,792,433	1,731,596	901,089	158,545,130	78,522,021	80,023,109	9,310,289

* Operations of Western and its subsidiary, Inland, should be considered as consolidated, although reports are filed separately as shown here.
** Figures do not include operations of local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case. Figures covering operations of route 106 are carried separately on local service airlines summary sheets.

U. S. DOMESTIC AIRLINE TRAFFIC FOR MARCH, 1952

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor	Mail Ton-Miles ***	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
American	372,872	211,486,000	306,231,000	69.06	1,389,468	803,731	3,677,907	26,690,917	40,659,156	65.65	6,881,114	7,175,900	95.08
Braniff	65,435	23,001,000	37,805,000	60.84	130,799	69,233	158,448	2,557,882	4,879,402	52.42	1,014,642	1,063,185	95.03
Capital	141,125	42,704,000	84,094,000	50.78	168,144	193,126	316,143	4,761,056	10,728,005	44.38	2,041,769	2,111,424	93.28
Caribair	11,232	871,000	1,734,000	50.23	910	. . . .	2,667	73,724	167,064	44.13	64,725	64,483	99.77
C & S	41,707	16,075,000	25,841,000	62.21	65,106	71,437	106,450	1,782,252	3,156,470	56.46	769,975	799,769	96.04
Colonial	17,536	4,441,000	9,691,000	45.83	12,317	7,319	12,940	479,184	1,006,109	47.63	302,355	317,278	94.55
Continental	27,662	11,260,000	21,968,000	51.25	44,071	17,463	65,330	1,204,665	2,474,727	48.68	659,463	639,685	98.15
Delta	84,917	42,748,000	65,355,000	65.41	166,919	96,459	370,066	4,752,923	8,012,662	59.32	1,651,868	1,655,759	98.86
Eastern	320,490	169,674,000	282,728,000	60.01	527,282	273,537	558,111	19,031,783	37,608,398	50.61	5,706,553	5,700,397	97.33
Hawaiian	23,551	3,041,000	5,242,000	58.01	2,077	7,506	64,385	329,169	645,881	50.96	250,918	216,536	99.75
Inland*	9,581	3,771,000	5,836,000	64.62	19,335	6,885	12,371	399,169	634,128	62.95	244,373	260,090	93.86
MCA	33,216	10,204,000	19,201,000	53.14	34,498	19,478	47,757	1,079,085	1,977,146	54.58	691,546	724,852	93.32
National	68,116	48,531,000	73,778,000	65.78	111,448	60,872	405,772	5,543,359	9,262,635	59.85	1,584,154	1,588,031	97.02
Northeast	24,289	4,678,000	9,733,000	48.06	12,313	14,402	19,809	481,005	973,339	49.42	324,064	383,355	83.41
Northwest	56,883	37,932,000	61,986,000	61.19	193,715	130,361	302,245	4,352,768	8,219,716	52.96	1,132,355	1,225,972	91.20
Trans Pac.	9,896	1,226,000	3,307,000	37.07	1,688	1,857	3,156	102,145	288,254	35.44	118,121	113,755	99.74
TWA	174,126	127,303,000	179,372,000	70.97	942,580	498,419	1,530,518	15,166,224	23,440,837	64.70	4,272,632	4,591,947	92.36
United	247,114	159,771,000	237,353,000	67.31	1,745,752	730,976	2,353,478	20,116,107	35,753,396	56.26	5,478,622	5,720,497	94.24
Western*	54,184	19,960,000	30,614,000	65.20	97,346	38,044	75,174	2,117,213	3,226,081	65.63	798,655	804,576	98.84
TOTALS	1,783,932	938,677,000	1,461,869,000	64.21	5,685,568	3,041,105	10,082,727	111,020,630	193,113,406	57.49	33,987,904	35,157,491	95.01

* Operations of Western and its subsidiary, Inland, should be considered as consolidated, although reports are filed separately as shown here.
** Figures do not include operations of local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case. Figures covering operations of route 106 are carried separately on local service airlines summary sheets.
*** Includes air parcel post.

NOTE: Above figures include both scheduled and non-scheduled operations.

U. S. DOMESTIC AIRLINE TRAFFIC FOR APRIL, 1952

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor	Mail Ton-Miles ***	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
American	417,490	231,333,000	317,503,000	72.86	1,391,031	740,226	3,653,147	28,403,304	41,975,427	67.67	7,065,697	7,139,218	98.06
Braniff	59,997	21,072,000	33,715,000	62.50	120,703	69,439	168,859	2,374,967	4,365,642	54.40	944,191	1,051,561	88.76
Capital	162,316	49,343,000	84,424,000	58.45	149,730	192,724	296,563	5,355,513	10,893,318	49.16	2,044,380	2,030,977	97.57
Caribair	8,710	709,000	1,454,000	48.76	899	. . . .	2,456	60,393	138,896	43.48	53,815	53,538	99.63
C & S	43,907	16,850,000	26,208,000	64.29	72,822	65,266	106,503	1,858,895	3,196,966	58.15	790,469	795,390	99.18
Colonial	20,109	5,158,000	10,157,000	50.78	11,541	6,946	12,281	548,765	1,056,014	51.97	312,390	312,914	98.18
Continental	28,468	11,113,000	20,874,000	53.24	45,861	18,347	63,252	1,190,803	2,379,675	50.04	635,623	623,499	99.53
Delta	85,068	40,244,000	60,450,000	66.57	157,050	92,566	355,316	4,474,610	7,217,539	62.00	1,543,357	1,530,529	99.52
Eastern	336,022	171,301,000	275,340,000	58.17	511,599	316,665	560,738	19,199,548	37,996,746	51.51	5,613,274	5,534,683	98.77
Hawaiian	29,808	3,816,000	6,068,000	62.89	2,374	8,798	79,436	400,923	747,209	53.66	287,695	210,136	99.62
MCA*	35,912	11,249,000	20,447,000	55.01	36,475	21,489	46,458	1,181,828	2,077,227	56.89	726,407	707,768	98.34
National	63,794	44,655,000	69,558,000	64.20	128,744	57,233	469,997	5,204,619	8,739,116	59.56	1,507,973	1,458,613	98.17
Northeast	30,944	5,993,000	10,532,000	56.90	13,034	16,166	20,297	605,591	1,053,104	57.51	353,588	376,104	92.15
Northwest	69,218	45,595,000	66,877,000	68.18	235,307	160,378	331,183	5,108,254	8,911,785	57.32	1,255,123	1,249,799	98.86
Trans Pac.	14,795	1,814,000	3,847,000	47.15	2,010	456	3,767	144,671	339,683	42.62	137,386	110,426	99.87
TWA	194,128	142,708,000	188,205,000	75.83	920,660	502,442	1,407,088	16,487,236	24,338,927	67.74	4,417,542	4,535,087	96.75
United	280,185	179,354,000	252,990,000	70.89	1,744,313	761,668	2,251,069	21,916,982	38,032,290	57.63	5,806,246	5,799,630	98.82
Western**	67,210	24,915,000	36,547,000	68.17	110,267	46,249	90,857	2,626,599	3,894,332	67.45	1,031,851	1,037,047	98.89
TOTALS	1,948,081	1,007,222,000	1,485,196,000	67.82	5,654,420	3,077,098	9,919,267	117,143,501	197,353,696	59.36	34,527,007	34,556,919	98.17

* Figures do not include operations of local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case. Figures covering operations of route 106 are carried separately on local service airlines summary sheets.
** Western's figures include Inland's operations for period April 1-9 effective date of complete absorption of Inland by Western.
*** Includes air parcel post.

NOTE: Figures include both scheduled and non-scheduled operations.

U. S. INTERNATIONAL AIRLINE TRAFFIC FOR MARCH, 1952

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	U. S. Mail Ton-Miles*	Foreign Mail Ton-Miles	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
American	10,275	8,112,000	12,246,000	66.24	14,225	4,864	407	158,041	1,059,528	1,672,662	63.34	241,911	247,515	96.58
Braniff	2,897	6,541,000	15,090,000	43.35	35,154	6,133	....	60,146	828,931	2,172,016	38.16	354,029	361,906	97.82
C & S	2,490	2,958,000	6,517,000	45.39	4,657	736	....	91,681	405,494	902,222	44.94	141,234	143,902	98.15
Colonial	2,227	1,742,000	2,902,000	60.03	1,047	413	....	7,485	197,385	349,844	56.42	55,975	49,098	100.00
Eastern	7,250	10,057,000	15,758,000	63.82	38,324	....	....	58,892	1,191,883	2,775,994	42.94	265,946	264,565	99.39
National	6,566	1,734,000	3,506,000	49.46	1,378	....	4,121	17,461	198,406	438,413	45.26	61,940	64,976	94.60
Northwest	5,524	9,138,000	16,654,000	54.87	121,030	35,579	10,528	605,400	1,747,298	2,744,874	63.66	517,187	527,108	95.41
Panagra	11,140	12,639,000	18,498,000	68.33	40,033	24,846	226,457	400	1,694,229	2,566,916	66.00	507,428	501,825	99.90
PAA														
Latin Amer.	78,034	65,625,000	106,861,000	61.41	262,586	57,961	....	2,309,250	9,276,413	14,451,969	64.19	2,527,487	2,066,256	99.73
Atlantic	29,556	40,239,000	61,872,000	65.04	491,928	120,482	....	1,293,577	6,382,051	9,181,356	69.51	1,290,935	1,257,060	97.63
Pacific	7,717	26,903,000	42,539,000	63.24	361,985	66,010	....	617,481	4,008,763	6,593,915	60.79	870,168	851,464	99.99
Alaska	3,486	3,794,000	10,827,000	35.04	38,233	....	....	390,664	835,911	1,586,193	52.70	242,423	251,196	96.51
TWA	11,739	29,819,000	44,001,000	67.77	371,246	140,502	....	604,018	4,403,530	6,310,229	69.78	1,080,943	1,080,292	96.77
United	3,718	9,212,000	13,984,000	65.88	56,098	....	....	56,831	1,093,875	1,960,537	55.79	265,332	265,332	100.00
TOTALS	182,619	228,513,000	371,255,000	61.55	1,837,924	457,526	241,513	6,271,327	33,323,697	53,707,140	62.05	8,422,938	7,932,495	98.39

* Includes air parcel post.

NOTE: Figures include both scheduled and non-scheduled operations.
Data in above tabulations were compiled by American Aviation Publications from reports filed by the airlines with the Civil Aeronautics Board. Figures for American Airlines include that carrier's service to Mexico but not to Canada; for Braniff to South America; C & S to South America; Colonial to Bermuda; Eastern to Puerto Rico; National to Havana; Northwest to Orient and Honolulu and United to Honolulu. Operations of U.S. carriers into Canada are included in domestic reports to CAB, in accordance with CAB filing procedures.

U. S. INTERNATIONAL REVENUES & EXPENSES, QUARTER ENDING MAR. 31, 1952

Airlines	Total Operating Revenues	Passenger Revenues	U. S. Mail Revenues	Foreign Mail Revenues	Express Revenues	Freight Revenues	Excess Baggage Revenues	Non-Scheduled Transport Rev.	Total Operating Expenses	Aircraft Operating Expenses	Ground & Indirect Expenses	Net Operating Income Before Income Taxes
American	$ 1,404,363	$ 1,196,224	$ 32,630	$ 28,826	$ 484	$ 92,485	$ 19,065	$	$ 1,316,646	$ 685,714	$ 630,932	$ 87,717
Braniff	2,048,607	1,366,026	514,556	41,021	....	86,698	31,150	....	2,424,011	1,105,710	1,318,301	-375,404
C & S	1,222,778	645,830	463,317	3,865	....	68,662	24,878	....	871,797	429,822	441,975	350,981
Colonial	272,866	245,043	14,708	3,560	....	2,900	1,041	....	336,225	137,371	198,854	-63,359
Eastern	1,504,614	1,352,015	83,216	....	....	43,046	25,680	....	1,171,977	782,664	389,313	332,637
National	437,622	412,318	1,759	....	3,225	11,648	4,547	4,125	482,299	124,720	357,579	-44,677
Northwest	3,578,135	1,777,573	950,118	154,528	7,918	602,321	19,441	....	4,301,201	1,833,748	2,467,453	-723,066
Panagra	3,861,845	3,147,146	155,700	134,923	....	273,544	97,113	1,224	3,678,235	1,668,923	2,009,312	183,610
PAA												
Latin Amer.	17,309,283	12,329,572	1,806,750	482,571	....	2,119,431	347,710	149,780	18,044,234	7,947,382	10,096,852	-734,951
Atlantic	13,770,619	7,771,034	3,428,730	615,011	....	1,206,794	281,531	380,357	14,953,098	7,382,415	7,570,683	-1,182,479
Pacific	8,725,090	4,726,583	2,838,338	262,658	....	673,245	79,427	46,634	8,468,966	5,085,734	3,383,232	256,124
Alaska	1,154,283	603,757	285,740	....	....	257,083	6,451	....	1,449,089	680,580	768,509	-294,806
TWA	10,294,895	6,043,437	2,214,195	780,625	....	854,372	153,931	141,760	10,577,982	4,965,441	5,612,541	-283,087
United	1,823,679	1,596,488	137,493	....	....	55,503	10,285	....	2,357,445	1,374,722	982,723	-533,766
TOTALS	67,408,679	43,213,046	12,927,250	2,507,588	11,627	6,347,732	1,102,250	723,880	70,433,205	34,204,946	36,228,259	-3,024,526

U. S. LOCAL SERVICE REVENUES & EXPENSES, QUARTER ENDING MAR. 31, 1952

Airlines	Total Operating Revenues	Passenger Revenues	Mail Revenues	Express Revenues	Freight Revenues	Excess Baggage Revenues	Non-Scheduled Transport Rev.	Total Operating Expenses	Aircraft Operating Expenses	Ground & Indirect Expenses	Net Operating Income Before Income Taxes
All American	$ 759,159	$ 266,890	$ 449,051	$ 18,062	$	$ 1,304	$ 19,751	$ 941,459	$ 453,150	$ 488,309	$ -182,300
Bonanza	275,324	102,185	167,732	732	1,499	1,226	999	275,565	120,479	155,086	-241
Central	350,488	68,903	283,860	1,565	2,187	722	9,067	496,732	206,504	290,228	-146,244
Empire	259,162	96,017	152,246	2,203	....	672	6,339	271,461	140,487	130,974	-12,299
Frontier	1,124,195	337,681	744,833	4,825	24,870	2,308	6,462	1,086,641	514,229	572,412	37,554
Lake Central	292,909	55,529	233,085	5,602	....	365	5,727	344,690	169,427	175,263	-51,781
MCA*	169,444	102,587	59,868	2,716	2,422	433	1,149	233,844	91,608	142,236	-64,400
Mid-West	Figures not yet available. Data will be reported later.										
Ozark	707,087	114,469	587,042	4,911	....	654	...	680,239	349,640	330,599	26,848
Piedmont	896,824	579,374	289,011	6,275	8,550	4,326	6,106	965,930	487,846	478,084	-69,106
Pioneer	895,490	575,553	281,831	4,298	16,121	4,640	1,927	939,075	440,679	498,396	-43,585
Robinson	388,593	171,143	191,084	4,923	4,457	479	12,818	476,759	241,661	233,098	-86,166
Southern	636,151	254,252	370,644	8,748	....	1,504	...	770,046	389,888	380,158	-133,895
Southwest	552,452	296,936	218,389	4,961	14,390	1,149	2,696	626,486	270,525	355,961	-74,034
Trans-Texas	656,850	197,328	422,749	3,101	8,443	1,049	20,618	662,340	309,927	352,413	-5,490
West Coast	330,470	141,829	176,047	1,346	4,853	469	5,038	317,222	143,307	173,915	13,248
Wiggins	80,205	2,699	76,525	423	....	5	339	70,608	25,170	45,438	9,597
Wis. Central	471,308	192,533	265,966	10,630	....	1,257	...	592,039	274,705	317,334	-120,731
TOTALS	8,846,111	3,555,908	4,969,963	84,921	87,792	22,562	99,036	9,749,136	4,629,232	5,119,904	-903,025
					Helicopter	Mail Service					
Hel. Air Service	120,224	....	120,134	....	....	...	...	107,162	64,274	42,888	13,062
Los Angeles	81,623	....	79,623	....	....	...	...	92,789	50,837	41,952	-11,166

* Figures cover local service segment awarded company in the Parks Air Lines Investigation Case.

Production Spotlight

The pilot goes along just for the ride in this new jet, the Lockheed F-94C Starfire all-weather interceptor. After take-off, radar and other electronic "brains" enable the "C" to spot its enemy, lock onto the target, track, close, aim, and fire its rockets—all automatically. The Starfire, nearest thing to a guided missile, carries no guns, fires only 2.75 inch rockets (24 of them) from a housing ring in the nose.

Senate Group Asks Stretchout Reversal

IN AN OMINOUSLY worded report which warned that the stretchout of the aircraft program is "an invitation to disaster," the Senate Preparedness Investigating Subcommittee has called for elimination of the delay in the air power buildup. Sen. Lyndon B. Johnson's group conceded that at this late date, the goal of 143 Air Force wings by the middle of 1954 cannot be attained even if the stretchout is reversed. But the Texas Democrat and his colleagues called for stepped up rates to attain the 143-wing-goal "as quickly as possible."

The Subcommittee cited warnings by the nation's top defense leaders that 1954 marks the year of greatest peril to the U. S. "We are convinced, said the report, "that the threat which faces our security is so grave that an overriding priority should be placed upon building our defenses. . . . The alternative is the possible extinction of our way of life."

Despite the warnings, however, President Truman and others responsible for the decision to stretch out the target date of the 143-wing-goal to 1955 or later have paid little attention to the advice.

Wichita Plants Face Water Shortage

Major aircraft plants in the Wichita, Kan., area, including Boeing, Beech, Cessna, Swallow, Coleman Co., and others, are faced with a water shortage which is threatening to slow down production. The 48-inch water main, which supplies Wichita's water from Halstead, Kans., 30 miles away, is rapidly proving inadequate for the city's expanding defense industry.

The main had three breaks in a four-day period recently, forcing the layoff of nearly 50,000 Wichita aircraft workers. Nearly half, about 24,000 Boeing B-47 production employes, were furloughed from their jobs for four shifts.

Inadequacy of the water supply, which has been getting progressively worse since 1948, has prompted Boeing's general manager at Wichita, J. E. Schaefer, to ask the Air Force to send a team to the city to survey the water needs. Kansas lawmakers in Washington have also been asked to help remedy the problem, possibly through a Federal aid program.

Convair Modifications Moved to Fort Worth

Consolidated Vultee is planning to end its B-36 modernization program at San Diego by mid-December. Modernization work will start being shifted to the Fort Worth division in July, continuing until all equipment has been received from the coast.

As the Air Force delivers the final operational bomber to San Diego for modernization in July, Fort Worth will be turning out the first such plane scheduled for modifications there. The transfer of all B-36 activities from San Diego will mean that Fort Worth will handle all production and modernization of the intercontinental bomber.

The 4,000 employes working on the B-36 modernization project at San Diego are gradually to be transferred to production of the Convair R3Y cargo-transport seaplane as the phase-out continues. Transfers are to be made at a maximum rate of 120-150 employes weekly. San Diego had been making B-36B's into model D's since April, 1950, primarily by adding four GE J-47 jet engines. When this contract was completed in mid-1951, Convair was told to handle the installation of new comfort features, routine engine checks, and installation of new equipment.

Engines for Hughes Boat

Hughes Aircraft Co. has obtained a new set of Pratt & Whitney R-4360 engines for the eight-engine HK-1 flying boat and hopes to launch the plane after installing them. The change from the present-4A's in the flying boat to the Navy-provided-4's is expected to take several months and the Reconstruction Finance Corp. has now given Hughes until December 1 to get the boat flying.

French Customs. A Frenchman would more likely drown himself in the Seine than change a custom or a habit. The first thing you learn in taking a motor trip through France is that you might as well conform to the French custom of doing things. For some strange reason the French seem to want to do things their own way, a very peculiar idea in view of the fact that it's their country.

Everybody in France seems to do everything at the same time. For instance, they have four rush hours per day, one when they all pile into work in town in the morning, another at 12 noon when they all go to lunch, another at 2 p.m. when they pour back to work, and a fourth when everything closes for the night.

We have our rush hours, too, but our stores don't close at noon, the homeward-bound rush is spread out over a longer period of time, and many more shops and businesses stay open in the evening. When the French close up a town, they really close up. The metal shutters clang down and the lock snaps on and that's it. Very few stores have lighted shopwindows at night. Most French people eat at home. Even in Paris most office workers go home for lunch if they can. Consequently a French town is pretty deserted for two hours at noon, and virtually closed up tight by nightfall except for a few cafes and restaurants.

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Breakfast. All of this affects the tourist who's driving on his own through the countryside. We're used to being able to get all kinds of things to eat at any hour of the day or night. At noon we can stop at a quick-lunch counter if we're in a hurry and be on the road again in 15 minutes or a half hour. If you want a steak at 4 a.m. or 3 p.m. you can get it.

But not in France. If you miss the main meal time, you're out of luck, except in Paris where there are 24-hour restaurants.

Now take breakfast. We're used to a variety of things. Personally, I eat a light breakfast, but once in a while I want eggs, bacon, waffles, flapjacks, cereal and the like, and I always have fruit or juice.

In France the breakfast is simple. It's standard over much of Europe. It's known as a Continental breakfast and everybody has it day in and day out through a lifetime. In hotels it is served in your room at any reasonable morning hour. You can have breakfast downstairs if you wish, but the dining rooms are all closed so you have to eat it in the lobby or the bar or in a small breakfast room.

Half Milk. It consists of coffee and hot milk. (My own preference is 50% coffee and 50% hot milk and the result isn't at all bad), a roll and a croissant, or two croissants, some jam or marmalade, and butter. No fruit or juice. There is nothing quite so good as a fresh, crisp croissant, which is a crescent-shaped bakery item that only the French seem to know how to make.

In all main hotels and especially in Paris the French are used to serving eggs to Americans, but you pay plenty for this extra service and if you get boiled eggs you'll find out early in life that the French don't understand the meaning of "well done." A three-minute egg has done nothing more than take a 30-second splash in some hot water. Fruit juice comes high and the quantity small.

Noon Rush. Best advice is—enjoy that Continental breakfast. It's always the same. No arguments, no fuss. It's pleasant to be awakened by a maid or waiter barging into the room with a tray of coffee and rolls. And you can count on French hotel help barging into the room at any and all times. France is delightfully informal.

Now about lunch. For some cockeyed reason I always seemed to hit a town at 12 noon and run smack into the chaotic rush hour of bicycles, motorcycles, horses and wagons, automobiles and trucks. This wouldn't be so bad except that the birds who built the towns centuries ago were so set in their ways that they couldn't foresee the automobile in this century. Some streets are just barely wide enough for one car and when you get two-way traffic plus ten thousand bicycles per block, it's what is known as slightly tight. I was always trying to get into town when everybody else was going like the devil out of the center of town to their homes.

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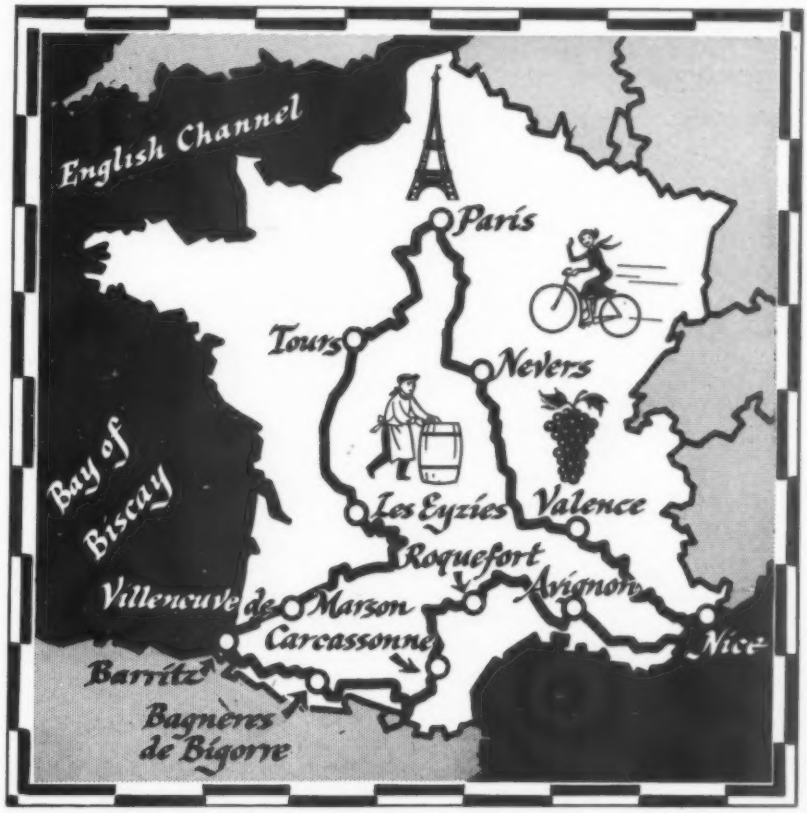
Two-Hour Lunches. Lunch is a delightful French custom. No rush, no crowding, no sitting on stools at a counter, no cafeterias. You sit down at a table and have a full meal and take anywhere from one hour to two hours to do the job right. Frankly, I didn't have much trouble falling in with this odd custom. As a tourist I just took two hours off for lunch regular as clockwork.

As a matter of fact, the first week out on the road I had a hard time getting anywhere at all. I averaged 60 miles before lunch every day. I have no idea where the time went, but at 12



2,500-MILE motor trip through France, May, 1952. Circles indicate overnight stops.

noon I had gone only 60 miles and was looking for the best restaurant in town for a two-hour rest. The truth is, I started out on a motor tour and it turned into a gastronomical tour, and all I did was to plan the trip from one good restaurant to another. I looked at scenery and old churches and castles and whatnot and got in some driving from 9 to 12, then I took two hours for lunch, then saw some more scenery from 2 to 5, then decided where my wife and I would spend the night, and drove like mad for two hours reaching the place. The bulk of driving was done the two or three hours before dark every day.

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Bikes & Pastry. Dinner comes late. That's one blessing about French hotels. I don't mean real late, but you can usually go into the dining room as late as 9 p.m. and get full service. By the time you've eaten your fill, with good wine to top it off, it's time for bed. Dinner occupies the evening. No TV, no radio, no movies.

There are two traps to beware of in touring France. One is the bicycle. Out in the Mid-West we killed off all the crazy farmers who wouldn't look to right or left when they barged out onto those new concrete roads some years ago. In France the bicyclists are being killed off the same way but there are still quite a few who whirl out of nowhere onto a busy road. I never knew there were so many bicycles in France until this trip. There are jillions of them. Saturdays, Sundays, and rush hours are especially bad.

The second trap is the *patisserie,* the shops which sell endless trays of delicious pastries, where you pick out your own pastry and eat it with hot chocolate or coffee or tea. This is one absolutely guaranteed way to increase weight. There are thousands of these patisseries waiting to lure and trap you. They comprise the greatest single evil of France. But by the bells of Notre Dame, there is nothing so delicious in this world as fresh French pastry about 4 or 5 in the afternoon. Sure, I'm on a diet now, but it was worth it.

U. S. Visit Suggests Revived Irish Interest

Recent visit of two Irish airline officials to the U.S. indicates revival of Irish interest in operation of a trans-Atlantic air route.

The officials, E. T. McCarron, chairman of Aer Rianta Teoranta, and J. F. Dempsey, general manager of Irish Air Lines, were to inquire about availability of planes, cost, delivery times, and possibility of chartering equipment from an American carrier. They came to the U.S. at the request of Sean Lemass, Minister of Transport and Communications, whose ambition has been inauguration of Irish service to the U.S.

Flying Tomorrow's Jets

Sperry research engineers are seeking solutions for tomorrow's flight control problems while they develop new ways to better the performance of control equipment currently flying.

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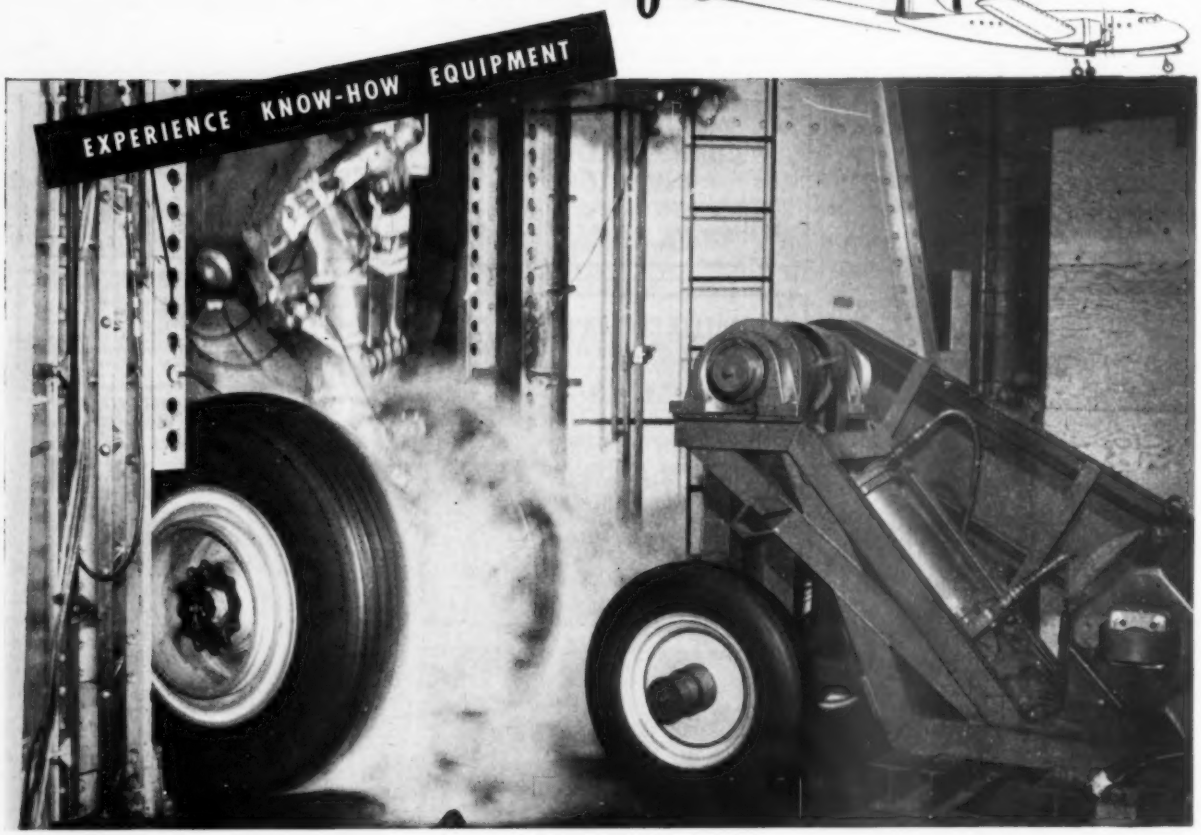

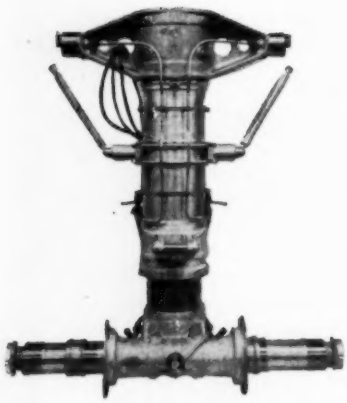

This is the aft landing gear for the Boeing B-47

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Cleveland Pneumatic engineers use this "Spin-Up" Drop Test equipment to simulate closely actual aircraft landings. With wheels rotating at high speed, the gear is dropped to produce the impact and strains encountered when airplanes touch the ground. By such special tests, the engineers can verify their calculations on new gear designs and often further refine them.

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Around the World

Olympus Jet Engine Off Secret List

The Bristol Aeroplane Company's Olympus jet engine has a maximum thrust rating of 9,750 pounds with an overall diameter of only 40 inches, the company announced as the Olympus was taken off the secret list and some of its details revealed for the first time.

Bristol also stated that the engine is being built by an American company.

The American company is Wright Aeronautical Division of Curtis-Wright Corp., which is building a new version of the Olympus under Air Force contract. Designated the J-67, the American version differs considerably from its British predecessor.

The Olympus will be flight tested within a few months, when two of the engines are fitted in an English Electric Canberra light bomber. Outstanding feature of the Olympus is its "remarkably low fuel consumption," but the specific rate has not been revealed. The engine is 10 feet four inches and weighs 3,250 pounds.

Bristol's statement described the engine as the "most powerful" in the world, although there are several American engines the greater thrust ratings of which have not been officially announced.

French Aim for 41 Air Groups

A 41-group air force for France came nearer realization recently as the French parliament adopted a $787 million air force budget. Air force personnel will be increased from 91,000 to 117,000 officers and men; equipment will be mixed; 40% French, 60% American.

Production of the de Havilland Vampire 5 by SNCASE is being tapered off, with only 67 scheduled for this year. SNCASE's main effort will be devoted to producing the Nene-powered Vampire 53, instead. Of these, 80 will be built in 1952, 168 in 1953.

Fokker to Build Scandias

Six SAAB Scandia twin-engine transports will be license-built in the Netherlands, three each by Fokker and Aviolanda, it has been announced by P. C. J. Vos, general manager of Fokker. Not revealed was the ultimate destination of the Scandias, or why they are being produced when the engines designed to power them P&W's R-2180's, are no longer in production.

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TRANSPORT

An ICAO traffic coordination center in the Eastern Mediterranean flight information region has been announced as a possibility by ICAO headquarters in Montreal. Present arrangement, whereby information may be obtained from Beirut, Cairo, or Lydda, is unsatisfactory because the center in Lydda, Israel, does not exchange information with the other two centers for "non-technical reasons."

Australian traffic slump is reflected by reports from two airlines there. Trans-Australia Airlines reports 10% to 20% less traffic than at the same time last year. Sydney office of Pan American notes that traffic fell from 51% above last year's totals, the level it had held through January, February, and March, to 20% below that mark during April.

LOT, Polish national airline, is replacing its fleet of 29 DC-3's and Li-2's with 29 Ilyushin Il-12 twin-engine transports.

Swissair has had to abandon parts of its summer schedule, including night coach flights to Copenhagen, Nice, and Rome, because of a shortage of flight crews. The line has consequently begun to accept non-commissioned pilots from the Swiss Army Air Corps; only commissioned army pilots were previously accepted. Recruiting and training of foreign crews continues.

Linee Aeree Italiane has had its foreign air carrier permit amended by the Civil Aeronautics Board to add Paris as an intermediate on the line's Rome-New York route.

Aviacion Y Comercio, Spanish independent, reports a net profit of $170,000 for 1951, as contrasted with $66,000 for the previous year. Dividend of 7% was declared.

Australian National Airways has given the title of administrative manager to F. Kowarzik, who is, in addition, assistant general manager.

Silver City Airways, automobile air ferry operator between England and the continent, plans to order three four-engined Blackburn and General Aircraft Universal Freighters according to Air Commodore G. J. Powell, managing director. Deal hinges on whether government purchases will bring the price down. If not, Silver City may buy the French Brequet "Deux Ponts."

Cruzeiro Do Sul has had its operating license for the Rio de Janeiro-New York route cancelled by the Brazilian Air Ministry. License was granted in 1947 but never used.

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MANUFACTURING

Companies working on guided missiles for the British Ministry of Supply include: Bristol, de Havilland Propellers, English Electric, Fairey, Vickers Armstrong, and members of the Hawker Siddeley group.

Bendix Aviation has established a wholly owned subsidiary in Brazil: Bendix de Brasil Ltda. New company will handle sales and field engineering for the area.

Guillemin, Sergot and Pegard, French machine tool company, has sold more than $1 million worth of radial drills to the Mutual Security Agency. The drills will be used by the Tonawanda, N.Y., plant of Chevrolet in production of the Wright R-3350 engine.

News At Deadline

PAA, TWA Get 7-Year Trans-Atlantic Renewal

Temporary trans-Atlantic certificates of Pan American and TWA have been renewed by CAB for seven years through July 4, 1959. CAB also awarded TWA a permanent "basic" route between New York, Paris, and Rome via Newfoundland and Ireland. European-American Airlines' application for Atlantic cargo certificate was denied, but President Truman requested that rehearing be granted if requested by the company.

Behncke Still ALPA Head, Court Rules

David L. Behncke is still the "lawful president" of the Air Line Pilots Association, according to a ruling by Federal District Judge Walter J. LaBuy in Chicago. The decision is counter to a recommendation made in May by the court's Master in Chancery Victor E. LaRue.

Behncke's $2 million damage suit against ALPA was turned down by Judge LaBuy, who awarded no damages to either side. ALPA is expected to take the case to the U.S. Court of Appeals after Judge LaBuy's decision is filed on July 10.

Slick Sells DC-6A

Slick Airways has sold its prototype DC-6A. Purchaser, although unidentified, is reported to be Transocean Air Lines, which may use it for non-scheduled Oakland-Honolulu service. Reported price: $1.2 million.

Eastern Bolts ATA in Dispute Over Ramspeck

Refusal of Air Transport Association's board of directors to extend the leave of Robert Ramspeck as executive vice president has resulted in resignation ot Capt. E. V. Rickenbacker as an ATA director and withdrawal of EAL from the association.

The president and general manager of EAL said the directors had failed to "live up to obligations for which they had previously committed themselves." Ramspeck, who has been serving as Civil Service Commission chairman at the request of President Truman, was on leave until June 30. After the ATA meeting on June 24, he said that when his leave expired he would relinquish his ATA position and continue as CSC chairman.

EAL's withdrawal from ATA is not expected to be permanent. Under the by-laws, a member must give six months' written notice before resigning. Also, a large carrier would find it almost impossible to operate without participating in ATA services such as the Clearing House, Air Traffic Conference, and others.

It was learned that Ramspeck had wanted to return to ATA only as executive vice president, with the early prospect of becoming president. Some lines were willing to have him back in his old position, but refused to vote for his being president.

Meanwhile, ATA directors have named a committee, headed by T. E. Braniff, president of Braniff Airways, to look for candidates for the ATA presidency.

Three Bids Received for Colonial Merger

Colonial Airlines has received merger offers from Eastern, National, and Northeast, as a result of its request for bids from ten carriers. A decision is expected on or before July 26 on the bids, which are as follows:

Eastern—Two shares of its stock for three shares of Colonial which, on the basis of recent market prices, figures to approximately $17 a share for Colonial stock now selling for about $11.

National—New 4½% convertible debentures, $11 par value, for each share of Colonial. These may be converted into National shares on the basis of 2½ debentures for each NAL share. Par value of the debentures to be increased to meet any "better offer."

Northeast—Renewed a long-standing bid based on an exchange of stock in a ratio to be determined by relative net book value on the date of consummation.

Kefauver Comes Out For Small Independents

Senator Estes Kefauver (D., Tenn.) has come out in favor of granting "a place in the sky" to the small independent airlines. Referring to them as an example of enterprise and initiative, he called for an end to "five years of decision on the part of the Civil Aeronautics Board."

Five 240's for Canada

Five Convair 240's and spare parts for them will be sold by Continental Air Lines to Canadian Pacific Airlines as delivery of CAL's Convair 340's progresses. Transfer of the aircraft, at $480,000 each, should be completed by early 1953.

US-Europe-Middle East Cargo Case Reopened

The US-Europe-Middle East Cargo Case, in which Seaboard & Western and Transocean were denied certificates early last month, has been reopened for "rehearing and reconsideration" by the Civil Aeronautics Board. Approved by President Truman, the Board's action means all-cargo certificate applications of Seaboard and Transocean will be considered in light of more current evidence than that available for the previous denial decision.

CAB Turns Down ALPA

Civil Aeronautics Board has rejected a bid of the Air Line Pilots Association to impose employe protective provisions in the case of Mid-West Airlines whose local service airline certificate was not renewed by the Board. Board said the consequences flowing from termination of the service must be faced by the shareholders and employes alike.

MWA's certificate expired May 15. ALPA and numerous civic groups petitioned for reconsideration. But CAB concluded there is "no sound reason" why employes should, at the expense of shareholders or the government, be "cushioned" from the adverse effects of the certificate's expiration.

Aero Groups Coordinate Annual Meeting Plans

A variety of aviation organizations, including all 14 members of the Conference of National Aviation Organizations, have agreed to converge on Kansas City's Municipal Auditorium during the week of March 22 next year to hold their annual or directors' meetings. The agreement comes after several years' discussion of such a concerted move.

Among those organizations which have already announced their intention to meet in Kansas City are the American Association of Airport Executives and the Airport Operators Council.

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PIONEER AIR LINES' NEW PACEMASTER FLEET ALL TEXACO-LUBRICATED

PIONEER AIR LINES provides fast, dependable local air service to 21 cities in Texas and New Mexico, over a route of 1,934 miles. In 1951, more than 161,000 passengers were boarded and, with its new Pacemaster Fleet in operation, Pioneer expects this figure to jump to over 200,000 in 1952. *Engines of all Pioneer planes have always been lubricated exclusively with Texaco Aircraft Engine Oil.*

In a multi-million dollar move to give better, faster local air service, Pioneer Air Lines is putting into operation a whole new fleet of 36-passenger, 270-m.p.h. twin engine Martin aircraft. This will cut flying time, provide greater passenger comfort, and increase cargo capacity.

"We are trying to provide the best local airline service possible," says General Robert J. Smith, President of Pioneer Air Lines, "and our new fleet, like our old, will be lubricated exclusively with *Texaco Aircraft Engine Oil.* We know from years of experience how much it helps in maintaining dependable, on-schedule operation and in keeping our maintenance costs low."

Pioneer's experience with Texaco parallels that of airlines everywhere. In fact—

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